The
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Rubber Meetings in Philadelphia Successful

Crude Rubber Symposium of Rubber Division of American Chemical Society Presents Broad Program of Papers by Foremost Experts

The first crude rubber symposium of the Rubber Division of the American Chemical Society, held in Philadelphia on September 9 and 10, was a success from all standpoints and the more than 400 rubber chemists and executives who had been in attendance departed with the feeling that the convention staged by Chairman John M. Bierer and his assistants had fully repaid them for the time they had spent at its sessions. The only flaw was the absence of a few speakers who were prevented by illness and other circumstances from presenting their papers in person.

Instead of being held in Logan Hall, University of Pennsylvania, as originally announced, the symposium was called to order in the spacious auditorium of Drexel Institute, located a few blocks from the University campus where other divisions of the American Chemical Society were holding their meetings. The first session got underway promptly at 9:30 on the morning of September 9 and for the next two days the chemists were busy with a solid but highly interesting program.

Seventeen full-length papers were delivered. The eighteenth paper on the program was that of Dr. Henry P. Stevens, consultant of the Rubber Growers' Association of London but illness had forced his return to London two days before the symposium began. An abstract of Dr. Steven's paper was read by W. H. Cope of the R. T. Vanderbilt Company. Dr. Ernst A. Hauser of Frankfurt, Germany, was not present to explain his micro-motion picture of the dissection of the latex globule and his place was taken by Dr. George L. Clark, of Massachusetts Institute of Technology.

The first session was opened by Dr. E. E. Slosson's paper on "The Importance of Rubber in Modern Civilization". Dr .Slosson is director of "Science Service" in Washington, and is noted for his ability to visualize and explain the results and possibilities of scientific research. The theme of his remarks was that the advance of civilization augments the importance of rubber. Since civilized man must increasingly and continuously combat nervous irritants and disintegrating forces such as noise and jar, the most efficient buffer, which is rubber, will come more and more into use.

Dr. A. Van Rossem, of the Dutch Rubber Plantations Institute at Delft, Holland, read the paper of Dr. Otto de Vries, his associate, on the subject "Developments on the Dutch Rubber Plantations". This represented no change in the program since Dr. de Vries has been in the Dutch East Indies for some months and it was known that he could not return in time to present the paper in person. He touched on the many experiments now being carried out on the Dutch Plantations and the hope that was entertained for constantly increasing yields of plantation rubber per acre.

The paper of leading interest in the first morning session appeared to be that of Dr. Weil of the Continental Rubber Company of Hanover, Germany, on "The Present Status and Future Prospects of Synthetic Rubber". The paper was read by Dr. W. C. Geer of the B. F. Goodrich Company in the absence of Dr. Weil who could not be present, as previously announced. The inadequacy of the synthetic rubber made in Germany during the war was clearly revealed by Dr. Weil. Some 2,350 tons of synthetic rubber were made, he said, but it cost $5.00 a pound and was inferior to natural rubber except for the manufacture of hard rubber goods. The automobile tires made from the synthetic rubber gave out after 1,500 miles of service and for inner tubes the rubber would not do at all.

In his remarks which followed the reading of the paper, Dr. Geer agreed that the artificial product was inferior,

The Imposing Drexel Institute of Arts, Science and Industry Where the Crude Rubber Symposium Meetings Were Held.

inelastic and expensive. He was convinced, he said, that the world has little to expect and the rubber planter little to fear from synthetic rubber. Dr. Geer emphasized the breadth of the commercial problem which synthetic rubber would have to solve before it could displace natural rubber.

The last speaker of the morning was Dr. H. N. Whitford of the Rubber Association of America who discussed the wild and plantation rubber production of Africa and tropical America. The output from such regions, Dr. Whitford showed, was in direct relationship to the market prices, but after a production of 70,000 tons was reached the stimulation of high prices lost its effect.

Three Papers on Guayule

The Thursday afternoon session almost resolved itself into a guayule rubber symposium with three representatives of the Continental Rubber Company of New York as the authors of the papers. In fact, guayule commanded more interest than scarcely any other subject during the entire convention.

Dr. W. B. McCallum's paper on "The Botany of Guayule Rubber" was read by Dr. David Spence. The possibility of cultivating guayule rubber received the greater part of Dr. McCallum's attention. He explained many of the difficulties which the Continental company had encountered in developing the guayule plants which it now has growing in California. Dr. Spence's own paper dealt with "The Chemistry of Guayule Rubber" and explained the separation of guayule rubber from the plant and its preparation for use in rubber factories.

The paper of G. H. Carnahan, president of the Continental Company dealt with the production of guayule. After touching on the extraction of the rubber from the wild shrub, Mr. Carnahan took up the possibilities of guayule production from cultivated shrub. A really large and dependable expansion of guayule output, he said could be obtained by intensive cultivation of the plant in certain portions of two mildly frost-bitten belts that extend around the earth within the temperate zones.

The Eastern rubber plantations had their inning in the same afternoon when J. W. Bicknell of the United States Rubber Company discussed "Botanical and Chemical Developments in the Plantation Industry". The first widespread interest in the scientific study of Hevea came when the newly planted trees were threatened by destruction from disease, Mr. Bicknell pointed out. Since that time the interest of rubber planters in scientific research and application has been continuous. Developments of this kind which the speaker mentioned included seed selection, budding, cover crops, soil conservation and manuring.

The banquet of the Symposium was held at the Benjamin Franklin Hotel on Thursday evening, the speakers at that function carrying on the general theme of the meetings, the relationship of science to all industry and to the rubber industry in particular. A report of the banquet, together with a photograph, will be found on another page.

The sessions on Friday, September 10, the last day of the Symposium, opened with subjects more strictly technical than those which had marked the meetings of the previous day. Professor George L. Clark of the Massachusetts Institute of Technology read an interesting paper on "X-Ray Contributions to the Analysis of the Structure of Rubber" which was adequately illustrated with lantern slides.

The motion picture machine was next brought into play to show Dr. E. A. Hauser's picture of the dissection of the latex globule. No feature of the entire symposium attracted greater interest and admiration than did this one. The pictures showed the minute particles of rubber moving about in the latex. This is the first time that such pictures have been taken, and Dr. Hauser himself devised the micro-film camera used in making the film. The tiny drops of rubber in the latex were all of irregular shape and in incessant motion.

Dissecting the Globules

In the course of the picture, some of the tiny drops of rubber were pierced with a sharp instrument. It then appeared that the rubber was contained in a sort of bag and that when it was punctured, the rubber oozed out as a heavy liquid. In the absence of Dr. Hauser, Professor Clark, the previous speaker, explained the motion pictures.

The paper of Dr. Philip Schidrowitz, which followed, dealt with the direct use of rubber latex. A new process in which latex in its milky form is first vulcanized and then evaporated, reversing the usual practise, was said by Dr. Schidrowitz to be worth noting. He predicted a steady advance in the direct use of latex.

The possibility of developing substitutes for rubber that are unconnected with synthetic rubber was discussed by Dr. Ellwood B. Spear, vice-president of the Thermatomic Carbon Company of Pittsburgh. He suggested that instead of attempting to produce a synthetic product with the exact properties of natural rubber, it might be more rational to try

Auditorium of Drexel Institute which was given over for two days for the meetings of the Crude Rubber Symposium in Philadelphia.

R. P. DINSMORE
Elected Chairman, Rubber Division

making materials with superior properties for specific purposes. He suggested that there was always a possibility of producing new substances which will replace rubber for various purposes and be superior physically and economically.

W. H. Cope of the R. T. Vanderbilt Company next read an abstract of the paper of Dr. Henry P. Stevens, consultant of the Rubber Growers' Association of London, on the subject "Recent Developments in the Preparation of Plantation Rubber". Dr. Stevens had come to the United States to deliver his paper at the Symposium but became ill soon after his arrival and at the advice of his physician sailed for home two days before the symposium started. In his absence no attempt was made to deliver the complete paper but Mr. Cope read an abstract summing up Dr. Stevens' idea that there are no radical alterations to be looked for in the preparation of plantation rubber in the future. When the papers are published, Dr. Stevens paper will appear in full. A resolution was adopted that a cablegram wishing Dr. Stevens a speedy return to health be sent and that his organization be thanked for having arranged for him to make the trip.

IRA WILLIAMS
Elected to Executive Committee

NEWLY ELECTED OFFICERS OF RUBBER DIVISION

R. P. Dinsmore	Chairman
H. L. Fisher	Vice-Chairman
A. H. Smith	Secretary

EXECUTIVE COMMITTEE

N. A. Shepard	A. A. Somerville
C. C. Davis	Ira Williams
Frank Kovacs	

Dr. G. S. Whitby of McGill University, Montreal, discussing methods of testing raw rubber, showed that the resins of impurities in rubber have greater effect on the quality of vulcanized rubber than the rubber itself. These impurities, he said, control the quality of the finished goods.

In the closing session of the symposium Friday afternoon, Dr. A. Van Rossem appeared again before the chemists, this time to read his own paper entitled "Research on Raw Rubber at the Netherlands Government Institute at Delft". The effect that different substances in the soil have on the finished rubber was emphasized.

"The Composition and Structure of Rubber" was the subject of a paper by R. P. Dinsmore, chief chemist of the Goodyear Tire and Rubber Company. This paper was accompanied by lantern slides, as were many of the others.

C. C. Burgdorf of Germany read an interesting paper on synthetic rubber. The possibility of perfecting a synthetic rubber of satisfactory quality was good, the speaker said, but like his associates, he felt that many serious commercial problems would have to be solved before such a product could expect to displace natural rubber in normal times.

"The Optimum Cure Criteria of Vulcanized Rubber" was discussed by W. B. Weigand of the Binney and Smith Company, New York. He was followed by H. A. Winkelman of the Philadelphia Rubber Works of Akron, whose subject was "The Present and Future of Reclaimed Rubber". This concluded the formal program and it remained only for Chairman Bierer to adjourn the meeting.

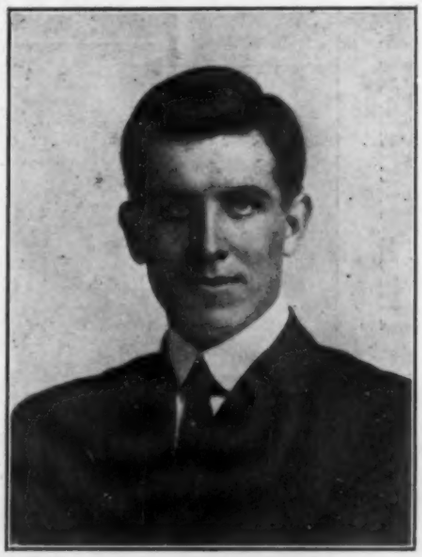
The business session of the Rubber Division was held on September 7, two days before the symposium began. R. P. Dinsmore was elected chairman of the division for the coming year. He took office at the conclusion of the symposium and will direct the meetings in 1927. The new vice-chairman is H. L. Fisher of the B. F. Goodrich Company. A. H. Smith, secretary of the division since its formation, was re-elected.

New members of the division's executive committee are N. A. Shepard of the Firestone Tire and Rubber Company, Ira Williams of the Mellon Institute of Pittsburgh, A. A. Somerville of the R. T. Vanderbilt Company, New York, C. C. Davis of the Boston Woven Hose and Rubber Company, Cambridge, Mass., and Frank Kovacs of the Seiberling Company, Akron.

H. L. FISHER
New Vice-Chairman, Rubber Division

Under the rules of the American Chemical Society, all papers read at sessions of any division become the property of the Society and may not be published in the general or trade press until the journal of the Society, Industrial and Engineering Chemistry, has used or released them. Since it is the intention of that publication to officially record the crude rubber symposium papers in its issue of November 1, the full text of none of the papers can appear in any rubber journal before that time.

The next meeting of the Rubber Division will be held in Richmond, Virginia, in the Spring of 1927. The autumn meeting of 1927 will be held at Detroit in connection with the annual meetings of the Society. The meeting place for the spring of 1928 has not yet been decided upon but in the autumn of 1928 the Division will meet in Boston.



N. A. SHEPARD
Elected to Executive Committee

Three Hundred Attend Crude Rubber Symposium Banquet at Philadelphia

BANQUET FEATURED BY ADDRESS BY KETTERING

While Norris and Irvine Urge That a Huge Research Fund Be Established In the Rubber Industry, Main Speaker Tells Chemists to Change Perspective.

In spite of the inability of certain rubber industry representatives to be among the speakers as planned and announced, the Crude Rubber Symposium banquet on September 9 proved to be one of the most enjoyable features of the rubber chemists' meeting in Philadelphia. Approximately 300 were present. The banquet was served in the Crystal Room of the Benjamin Franklin Hotel.

After John M. Bierer, chairman of the Rubber Division of the American Chemical Society, had extended a welcome to the guests, he turned the meeting over to the toastmaster, J. C. Weston, president of the Ajax Rubber Company and the Rubber Association of America. The general theme of the speaker's addresses was to be the relationship of research to industry. H. S. Hotchkiss, president of the General Rubber Company, was the first of the "five-minute" speakers. He spoke of the accomplishments of research in connection with rubber culture. J. D. Tew, works manager of the B. F. Goodrich Company, used the development of rubber accelerators to illustrate his remarks on the value of research in the rubber factory.

Other speakers were Everett Morss of the Simplex Wire and Cable Company, J. F. Norris of the American Chemical Society and Sir James C. Irvine of St. Andrews' University of Edinburgh. The appeal of these speakers was for the rubber industry to take still further advantage of scientific research. Dr. Norris in particular urged that the creation of a joint fund for rubber research would be worth-while and should be undertaken without further delay.

The main speaker of the evening was C. F. Kettering, vice-president in charge of research with the General Motors Corporation. Those who expected a pointed, clever address were not disappointed. Handling the research problems of one of the largest American manufacturing companies had clearly given him the background from which to speak to the chemists themselves and to deal with the work in hand rather than with the work which might sometime be started.

The great need of the chemists, Mr. Kettering suggested, was for them to get a little closer to the commercial side of their companies' problems than is usually the case with research specialists.

Contrary to the usual desire of the research man, Mr. Kettering advanced the idea that research work could best be carried out under a budget system.

The banquet orchestra was assisted by the "silver-masked" tenor of the Goodrich Silvertown orchestra who is well-known for his radio broadcasting. He is seen standing at the end of the speakers' table in the picture on this page.

DECISION DEFERRED IN DIRECT DRIVE FIGHT

Rubber Belting Manufacturers Not Likely to Participate in New Organization Unless Mechanical Rubber Goods Division of Rubber Association Approves.

In the absence of a formal report from its sub-committee appointed to study the question, the Mechanical Rubber Goods Division of the Rubber Association voted at a meeting held in Boston on September 15 to defer again any decision as to whether the Division will recommend the participation of rubber belting manufacturers in an association now being formed to combat the encroachment of the direct drive on the belting market.

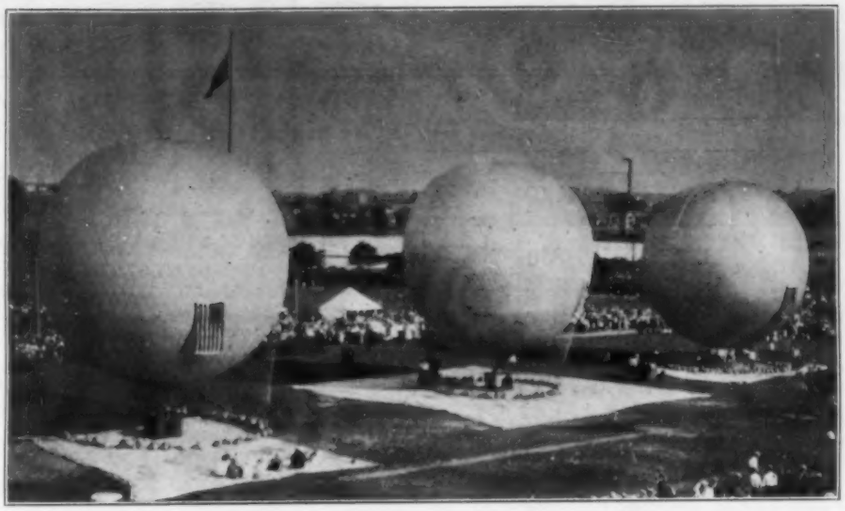
Since the Division previously considered the matter, as reported in the August 10 issue of THE RUBBER AGE, the backers of the proposed association have made important changes in their plans. For one thing, the organization will be known as the "Power Transmission Association" instead of the "National Association of Belting and Transmission Manufacturers" as originally announced. Secondly, the organization will be launched without waiting for a power transmission survey to be made. It was planned at first that the association would be formed only in case a survey by expert engineers showed that direct drives were supplanting transmission of power by belting in places where it is uneconomical. It is expected that the survey will be made at a later date, perhaps as one of the first pieces of work undertaken by the new organization.

Machinery, supply and leather belting companies who had contributed a total sum of about $6,000 for the proposed survey will be asked to turn their contributions into a fund for launching the "Power Transmission Association". Rubber belting manufacturers have not yet contributed. Before November 1 the proponents of the new organization will undertake a membership campaign. It will likely be several weeks before the subcommittee of the Mechanical Rubber Goods Division renders a final report and the Division makes its recommendations to belting manufacturing members of the Rubber Association. If the Division disapproves the new project, it is likely that only meager support for the new organization will be forthcoming from the rubber industry.

Myer Rubber Factory Sold

The factory of the Myer Rubber Company, Salem, Ohio, a concern which failed some time ago, was recently sold at public auction to S. H. Coffeld of Johnstown, Pennsylvania. Mr. Coffeld held a controlling interest in the bankrupt company and has controlled the leasing of the property. The building is now occupied by the Gibb & Brown Co., manufacturers of grease, in which company the new owner is the principal stockholder.

Unique Race Is A Feature of Goodyear Field Day



A fox-and-hound balloon race in which forty motorists were trying to be first in reaching the big gas bag when they landed was one of the features of the annual Field Day Celebration of the Goodyear Tire and Rubber Company which was held, as usual, on Labor Day. In spite of unfavorable weather during the entire morning, a crowd of more than 15,000 was in attendance. There was a lengthy program of contests and other amusements, including a brilliant display of fireworks in the evening. The celebration closed with a dance in the Goodyear gymnasium.

As shown in the photograph herewith three balloons participated in the fox-and-hound race. In addition to the pilot and aide in each basket, there were two Goodyearites who won their places through a lottery. In addition to the competition of the "hounds", there was also a competition among the balloon pilots to land the nearest to a point designated in a sealed envelope given them just before starting.

Symposium Sidelights

A feature of the first morning of the symposium was the receipt of a cablegram from the Institution of the Rubber Industry, of London, bringing the best wishes of that organization for a successful meeting. The reading of the message was followed by a round of applause.

* * *

The foreign speakers were greeted on all sides with the greatest cordiality. Through previous visits to this country, or the visits of American rubber chemists to Europe, they had become acquainted with many of the delegates. Dr. Stevens' absence was keenly felt and remarked upon by many who had been looking forward to meeting him.

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The technical salesmen of the producers of rubber chemicals and compounding ingredients were on hand to take full advantage of the opportunity to get acquainted with chemists from all parts of the industry.

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There were many compliments for THE RUBBER AGE on the attraction program and note book which it provided. It had been observed at previous meetings that the chemists usually lacked the facilities for taking notes as the papers were read, and the program was accordingly expanded into a booklet with a page of note space for every speaker. The note books also contained questionnaire forms for use in sending inquiries to the speakers.

* * *

Official Washington was well represented. Dr. James R. Weir, the Department of Agriculture pathologist who accompanied the government's crude rubber party to the Amazon in 1923, was present at the session and at the banquet. E. G. Holt, Chief of the Rubber Division of the Department of Commerce, was also in attendance.

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Dr. Hauser's micro-motion picture of the dissection of latex globules had to be shown a second time when a Drexel professor sent a party of students to see the picture a full hour after Professor Clark had completed the explanation.

* * *

On the banquet tables the guests found a generous assortment of favors ranging all the way from rubber cigarettes to silver cuff buttons. The balloons were plentiful as usual. One offering was a box of water colors made up by a prominent supplier of chemicals and colors to the rubber industry.

Financial Items

Rubber and Motors

FISK SALES FOR YEAR DECLINE ONLY SLIGHTLY

With sales of over $7,000,000 for August, Fisk winds up its fiscal year next month with expectations of well over $70,000,000 annual sales.

Volume thus far this month has been equally satisfactory, permitting the maintenance of the daily output schedule of 25,000 tires, which has prevailed for some weeks. For the first ten months of its current fiscal year to end Oct. 31, 1926 the company has reported $57,000,000 net sales. On account of the lower tire prices brought about by two reductions and a summer business that was slower than a year ago, Fisk may not reach the $75,000,000 sales total of last year, but the final aggregate should approximate $70,000,000.

The year's showing of profits will depend largely upon the extent to which the year-end charges may be necessary, and this factor in turn, depends a great deal on the trend of rubber prices. In any event the balance for the common is likely to run between $3.75 and $4 a share, it is calculated.

Braender Factory Sold

The factory and equipment of the Braender Rubber and Tire Company, Rutherford, N. J., was sold to L. M. Drew of New York for $100,000 at a public auction held on September 16. The sale was conducted at first with buildings and equipment separate but the total bid for the separate items failed to reach $100,000 and Mr. Drew was accordingly declared the buyer of the entire plant.

Pioneer Plans Addition

Construction was started this month on a new concrete factory building for the Pioneer Rubber Mills, Pittsburg, California. The addition is estimated to cost $100,000 and will occupy a site 110 by 250 feet.

UNITED SHOE MACHINERY GIVES EXTRA DIVIDEND

Although the United Shoe Machinery Corporation is generally visualized as a leather shoe machinery manufacturer, the rubber end of the company's activities has grown tremendously within the last few years and has been a big help in stabilizing the company's business.

The action of the Board of Directors recently in declaring an extra dividend of $1 a share on the common stock can be interpreted as meaning that the general outlook is very encouraging.

Among the machines used in rubber manufacturing now marketed and leased to the rubber trade by the United Shoe Machinery Corporation are: twin and single clicking machines: rotary cementers for various types of footwear cementing; heel, sole, and gum shoe trimmers; niggerhead lasters; pullers-over; and outsole pressing machines. The company also markets shoe accessory materials.

LATE PRICES OF RUBBER AND MOTOR STOCKS

RUBBER

	Last Price Sept. 17	Last Price Sept. 3	Record High	Record Low	1926 High	1926 Low	1925 High	1925 Low	Capitalization	Par Value	Earned Per Share-1925	Earned Per Share-1924	Dividend Rate	Funded Debt
Ajax	8⅜	8¾	113	4¾	16	7½	15¾	9½	500,000 sh.	None	$2.01	$1.56	None	$2,385,200
Faultless	40	41	54	25½	43½	34	51	26½	58,208 sh.	None	6.00 (i)	—	$2.	None
Firestone	113¼	108½	205	48	125	100	145	96	$3,517,710	$10	27.89	13.60	6	1,500,000 (a)
do 6% pfd.	102	102	105	75	103½	99	102½	97½	8,000,000	100	159.17	83.40	6	——
do 7% pfd.	97	97	101	55	100	96½	101	96	18,380,900	100	140.24	67.79	7	——
Fisk	18¼	18⅜	55	5⅞	26¼	14¼	28¾	10½	811,827 sh.	None	4.26	.85	None	20,200,000
do 1st pfd.	79	79½	116½	38⅛	84⅛	76⅞	116½	75½	18,198,900	100	30.60	11.80	7	——
General	150	155	415	140	375	140	415	233	1,995,400	25	44.35 (b)	34.89 (b)	None	None
do pfd	110½	110(k)	110	101	110	106	105	101	1,072,100	100	175.84	139.83	7	——
Goodrich	49¾	51½	93⅜	16	70¾	45½	74¾	36¾	601,560 sh.	None	21.74	9.11	4	38,162,500
do pfd.	96⅞	96⅞	114½	62½	100	95	102	92	37,472,000	100	51.57	27.95	7	——
Goodyear Com.	33¼	34½	49¾	7½	40	28	49¾	24¾	830,768 sh.	None	15.62	5.14	None	55,726,000
do pr. pfd.	106½	108⅛	109	88	108⅝	105⅜	109	103	15,000,000	100	140.04	81.08	8	——
do pfd.	105½	107	114⅝	22	109¾	98½	114⅝	86⅛	65,079,600	100	29.45	16.07	7	——
Hood	61½	58	72	43	68¾	57⅛	72	52	120,000 sh.	None	15.48	—	4	6,000,000
India	28	30(k)	176	30	165	30	176	160	63,659 sh.	None	6.69	4.47	2.50	None
Intercontinental	15	16	35	2	21¾	13½	19⅞	5	603,824 sh.	None	1.53	2.93 (c)	1	None
Kelly Springfield	13	13¾	164	9¾	21½	12¼	21⅝	12¾	8,896,000	25	1.93	nil	None	6,500,000
do 1st pfd.	60	63	145	40	74¼	61	74	41	2,950,000	100	49.24	51.72 (d)	None	——
do 8% pfd.	50	52	110¼	33	73¾	51	72	43	5,264,700	100	24.23	32.34 (d)	None	——
Lee	9⅞	7¾	56½	8	14	6¾	19	11⅝	300,000 sh.	None	1.40	nil	None	None
Miller	39	38	44¾	30	44¾	30	246 (c)	30	260,088 sh.	None	11.50	29.28	2	None
co pfd.	101	100¼	114	45	104	98½	106½	100	12,451,600	100	28.38	25.91	8	——
Mohawk	34	42	91	35	65	35	85	55	20,000 sh.	None	22.16	10.31	None	None
do pfd.	75(k)	73(k)	80	70	80	70	80	79⅜	1,963,265	100	29.57	17.49	None	——
Norwalk	6	7⅞	19¼	7⅛	15⅛	7⅛	19⅛	12⅛	1,495,000	10	2.22	nil	.80	None
Seiberling	24	23	37	19⅛	28½	19⅛	37	23⅝	192,626 sh.	None	4.03	5.50	None	1,500,000
do pfd.	90	95(k)	101½	92	97	92	101½	95½	818,600	100	137.29	95.50	8	——
Star	15(k)	—	20	10	15	12	20	10	17,322 sh.	None	—	1.60	None	None
U. S. Rubber	64½	65⅛	143¾	7	88⅛	5 1/16	67½	47	81,000,000	100	14.92	3.88	None	113,120,800
do pfd.	106⅛	106¾	123½	30¼	109	101⅛	108⅞	92¾	65,110,000	100	26.56	12.85	8	——
U. S. Rubber Reclaiming	11⅝	13⅞	21¼	11	21¼	11	17¼	11	86,670 sh.	None	—	—	None	None
do pfd.	90	90	90	21	90	85	85	45	2,000,000	100	—	—	8	——

MOTORS

Dodge Bros. "A"	28⅝	30½	48¾	21¼	47½	21½	48¾	21¾	1,934,563 sh.	None	6.57	4.76	None	59,485,000
General Motors	153	208⅝	225⅝	55¾	225⅝	113¼	149¾	64⅝	8,600,000 sh.	None	19.15	7.37	16 (f)	23,724,000 (g)
Hudson	54⅝	66¼	139½	19½	123¼	49⅝	139½	33¾	1,596,660 sh.	None	16.05	6.11	3.50	None
Hupp	25	26½	31	2⅛	28⅝	17	31	14¼	9,138,090	$10	4.15	1.76	1	None
Jordan	20½	21	66	21	66	21	65	35⅝	126,000 sh.	None	2.91	4.03	3	None
Moon	21	23½	42	9⅛	37⅝	23⅛	42	22¾	180,000 sh.	None	6.13	3.11	3	None
Nash	58½	59½	66	52	66	52	488 (e)	193½ (e)	2,730,000 sh.	None	54.13 (h)	28.43 (h)	3 (f)	None
Packard	36¼	37	48½	9⅛	45¼	31⅝	48½	15	26,147,220	10	4.84	1.67	2.90 (f)	None
Paige	16	17½	46½	11	28½	13⅝	33	17⅝	676,474 sh.	None	3.04	2.14	1.80	1,000,000
Pierce-Arrow	27¼	30⅝	99	6¼	43⅛	19	47⅜	10⅞	328,750 sh.	None	2.26	nil	None	3,950,000
Studebaker	58	57	68⅝	20	61⅞	47	68⅝	41¼	1,875,000 sh.	None	8.34	6.81	5	None
Willy-Overland	23⅞	29	34⅞	4½	34	18	34⅞	9⅛	12,635,250 sh.	None	4.03	nil	None	7,475,000

(a) Also guarantees $2,000,000 subsidiary's 6% bonds. (b) On 39,908 shares. (c) On 31,370 shares. (d) Deficit. (e) Old $100 par stock. (f) Partly extra. (g) Subsidiaries bonds guaranteed. (h) On old $100 par stock. (i) estimated. (k) Asking price.

APPEAL TO BE FILED IN TIRE MACHINE SUIT

Decision Sustaining Thropp Tire Machine Patent Arousing Interest Among Tire Manufacturers—Notice Sent to Industry by deLaski & Thropp.

Announcement of the recent decision of Judge Bodine upholding the validity of U. S. Patent No. 1,119,326 on the Thropp tire machine and declaring the Grove tire making machine used by the Murray Rubber Co., Trenton, N. J. an infringement of this patent and an injunction against its further use, was received with much interest by the rubber industry and more particularly by those tire manufacturers using the Grove machine.

It is understood that few of the larger tire manufacturers are using this machine, its use being confined almost exclusively to the smaller factories in this country. However, within the last few days, all tire manufacturers have received a notice from de Laski & Thropp Co., Trenton, N. J. in which they are advised of the recent decision in favor of the Thropp machine and asking for particulars of any infringing machines which are being used.

It is also learned that the Murray Rubber Co., will file an immediate appeal of the decision, which step means that this important case may yet reach the U.S. Supreme Court.

Moves Into New Factory

The Sponge Rubber Products Company, lately of New Haven, Connecticut, has moved into its new factory in Derby where new and additional equipment has been installed to allow the company to take care of its expanding trade in sponge rubber balls. The company is also putting in equipment for the manufacture of other sponge rubber products such as bath sponges, sheet sponge rubber and moulded, die-cut sponge rubber.

The officers of the company remain the same. F. M. Daley is president, Lowell Smith is vice-president and factory manager, and W. R. Todd is secretary and treasurer.

Maine Heel Plant Busy

The Webster Heel Company, only rubber factory in the State of Maine, located at Sabattus, a suburb of Auburn, reports business of over 2,000,000 pairs of heels on the books, or over two month's production. A large part of the factory's output is consumed in the local market. Over 100,000 pairs of leather shoes a day are manufactured in Lewiston, Auburn, and Gardiner district.

Cincinnati Grinders

A new Cincinnati corporation known as Cincinnati Grinders, Incorporated, has been organized with an authorized capital of $1,500,000 to take over the grinding machine business of the Cincinnati Milling Machine Company and the Centerless Grinder business of the Heim Grinder Company of Danbury, Connecticut. At the same time it was announced that the new company had acquired the Triumph Electric Plant at Oakley, Ohio, and would immediately convert that property into one of the most modern and best equipped grinding machine plants in the world. The new plant is expected to be in operation early in 1927 and will commence with a force of several hundred men.

ACME $15,000 PAYROLL LOST IN DARING HOLD-UP

Two masked bandits drove alongside an automobile bearing the payroll of the Acme Rubber Company of Trenton on September 3, forced the driver at the point of a revolver to pull over to the curb, and escaped with a handbag containing $15,000 in cash.

The hold-up was staged less than three hundred feet from the main office of the Acme Company and within view of employees who were taking their lunch outside. Less than a minute after they stopped the pay car, the gunmen went at high speed past the factory workers some of whom were nearly struck when they ran out to halt the speeding machine.

The automobile carrying the pay roll was occupied by Edward T. Comley, secretary of the Acme Company, and Roy Lawrence, paymaster.

Nutter Joins Reclaimer

Charles F. Nutter, who has been manager of the Ohio state department of industrial relations, division of workmen's compensation, with his headquarters at Akron, has resigned to accept a position with the Philadelphia Rubber Works, well-known rubber reclaimers.

TIRE PRODUCTION LESS; STOCK SURVEY PLANNED

Slackening From High August Figure Begins Following Labor Day; Commerce Department Ready to Determine Average Stock Among Tire Dealers.

Labor Day appeared this year as the signal for a slowing down of the tire industry from the speed which it generated in July and August. The latter month is thought to have set a tire production record for all time. The high production tickets which characterized that month were continued up to the Labor Day holiday but a gradual slackening has been apparent since that time. This change is partly seasonal and partly due to a changing demand from tire dealers. The latter have taken care of the tourists and mid-summer rush and are content to ride along the stocks that they have.

Just how many tires the average dealer has on hand will be revealed by the semi-annual survey of tire dealers' stocks which the Rubber Division of the Department of Commerce is now arranging to take as of October 1. During the last days of this month questionnaires will be sent to about 100,000 tire dealers throughout the United States. Dealers will be asked to report how many casings, tubes and solid tires they have on hand. The Rubber Division expects to issue a preliminary compilation of returns before the twentieth of October and to give the trade a final and complete report at about the end of that month.

In the past surveys of the Department of Commerce about 35,000 tire dealers have sent in replies that could be used in determining the average stock; this does not include the dealers who report that their stocks are depleted.

Firestone Officials Active in Annual Golf Tournament

Many officials of the Firestone Tire and Rubber Company of Akron took an active part in the annual Firestone golf tournament which was recently held. The accompanying photograph, reading from left to right, shows J. W. Thomas, vice-president; S. G. Carkhuff, secretary; Lee Jackson, and J. J. Shea, treasurer. Although the foursome made a noble effort, none of its members took the tournament trophy home with him. R. S. Leonard, assistant treasurer, and Paul Sheeks, athletic director, divided the final honors.

RAND BRINGS OUT NEW LINE OF RUBBER APRONS

The Rand Rubber Company, Brooklyn, N. Y., recently announced to the trade a new line of decorated and printed household aprons which has aroused much interest on account of the attractiveness and originality of the many patterns. Over 50 different designs, printed in a number of colors, were introduced. Some of the patterns resemble silk while others, printed in combination with a specially prepared gold paint, imitate a heavy brocaded material in appearance.

This concern is a pioneer in this class of rubber goods, having designed much of its own equipment, perfected its own inks and colors and engraved its own molds. Other novelty aprons being made at this time include some with beaded flowers, rubber flowers, faces with movable eyes, and children's aprons on which are printed figures of well-known moving picture characters.

Cactus To Rebuild Plant

The Cactus Manufacturing Company of Los Angeles, manufacturers of tire boots and patches, will erect a modern fireproof building to replace their plant which was completely destroyed by fire on July 24. According to officials of the company the new plant will be considerably enlarged which will enable the company to more than double its output.

THE NAUGATUCK CHEMICAL COMPANY
NEW YORK
Materials for the Rubber Goods Manufacturer

MONEX

Tetra - Methyl - Thiuram - Mono sulphide

ULTRA ACCELERATOR

The chief advantages to be gained from the use of MONEX are:

1. Ability to vulcanize efficiently at reduced temperatures.
2. Low accelerator cost.
3. Ease of handling.
4. As a booster of the cure of tires in which the slower accelerators are used.
5. Effective in high reclaim stocks as well as in stocks without reclaim.

ACCELERATING STRENGTH DATA

Rubber	100
Zinc Oxide	5
Sulphur	3
Monex	0.1

Cure in strip mold	60′/5 lbs.	30′/10 lbs.	45′/10 lbs.	60′/10 lbs.
Tensile strength	3955	3510	4235	4305
Elongation	770	820	810	830

THE NAUGATUCK CHEMICAL CO.
1790 Broadway New York City

SHOE MANUFACTURER TO PRODUCE OWN RECLAIM

The Endicott Johnson Corporation, nationally-known shoe manufacturers of Johnson City, N. Y., near Binghamton, have arranged for the immediate erection of a rubber reclaiming plant to supply the 650,000 pounds of reclaimed rubber per month which the company is using in its heel and sole manufacture. The rubber department of the company is now supplying the shoe factories with more than 200,000 pairs of rubber soles and 575,000 pairs of rubber heels each week.

The establishment of its own reclaiming plant will mark another application of the company's policy of producing its own parts and materials. Some years ago the company started its own leather tanneries. In 1922 the rubber department was organized. Just as the company has made itself independent of the rubber manufacturers, so will its new plant make it independent of the rubber reclaimers.

The new building to house the reclaiming activities will be 340 by 90 feet. The Johnson City service department of the corporation will build the structure. C. E. Bishop, consulting engineer of Akron, O., who recently designed a plant for the Miller Rubber Company, is responsible for the building plans. The investment is expected to run to $350,000. The scrap rubber for reclaiming will be drawn from within one hundred miles of Binghamton, officials of the company have stated.

Glaspy With Mohawk

J. A. Glaspy has been appointed Chicago branch manager of the Mohawk Rubber Company and comes to this post with eighteen years experience in the industry. Entering the field back in 1908 with the Republic Rubber Company, he served that company for eight years as auditor, salesman and special representative of mechanical goods. Then followed seven year's association with Kelly-Springfield in which he spent several years as manager of the Milwaukee and Chicago branches of that company.

To Handle Blow-Out Patch

The blow-out patch introduced by the Adams Tire Company, Atlanta, Georgia, two years ago has proven so popular that the Dixie Rubber Products Company of that city has been formed to handle the increasing demand for this product among jobbers and dealers in the southeastern states. B. S. Davis is president of the new company and D. E. Tyler, an experienced automobile man, is sales manager.

CATALPO!

IMPORTS LOW WHILE CONSUMPTION GAINS

Both Imports and Consumption of Rubber Change Direction in August; 249,000 Tons Have Been Used in the U.S. In First Eight Months of This Year.

Figures compiled and distributed by the Rubber Association of America show that crude rubber importations into the United States during August amounted to 25,982 long tons as against 31,584 tons in August of last year. In previous months of the current year, however, the imports have been exceeding those of 1925. For the eight months ending with August of this year the importations have totalled 271,706 long tons as compared with 247,289 in the corresponding period of last year.

Of the August imports, 23,960 tons arrived in Atlantic ports, only 471 tons being landed on the west coast. The Atlantic coast arrivals were divided between New York, Boston and Philadelphia, with New York receiving 23,127 tons.

The August rubber consumption, according to Rubber Association figures raised to 100 per cent, was 34,545 long tons. This was the highest consumption of any month this year but is behind several months of last year.

Rubber consumption in the United States during the first eight months of this year has amounted to 249,000 tons. Since tire production in September and the later months of the year is almost sure to fall below that of August, rubber consumption for the entire year is likely to fail considerably of reaching the figure of 1925 which was above 385,000 tons.

Jones Leaves Pharis Tire

Warren H. Jones, for the past four years assistant superintendent of The Pharis Tire & Rubber Co., Newark, Ohio, has resigned his position with that company and plans to take a short rest at his Long Island home to fully recover from a recent operation before resuming work in the industry.

CHANGE IN OWNERSHIP OF THE INDIA RUBBER WORLD

The many friends of the *India Rubber World*, and of Henry C. Pearson, its editor, have been surprised at a recent announcement that the publication has been acquired by Edward Lyman Bill, Inc., publishers of trade papers in New York City. The affairs of the publication will be handled in a division of the corporation known as The India Rubber Publishing Company which is the name Mr. Pearson chose for his company when he founded the *World* in 1889.

It is understood that the transaction was largely due to Mr. Pearson's desire to have still more freedom from cares of publication work. For the last few years the veteran publisher has freed himself to an increasing extent from the demands of the publication. Editorial responsibility has settled more and more on the managing editor, W. M. Morse, while failing health kept Mr. Pearson in California. Although Mr. Pearson's name will inevitably be linked up with the *World* for some time, the change in ownership will give him the final freedom which he has desired. Always an ardent traveller, he will start soon on a vacation trip in the West Indies.

The new publishers emphasize in their announcement that there will be no change in the policy or style of the *World*. They are already known to the rubber industry through their publications, *Tires* and *The Tire Rate Book*.

Mohawk Sales Increase

According to officials of the Mohawk Rubber Co., Akron, sales and profits for the month of August have established a new high record by exceeding that of any other month in the history of the company.

CATALPO!

The Philadelphia Rubber Works Company

Manufacturer of

RECLAIMED RUBBER

of

STANDARDIZED QUALITY

NEW YORK
52 Vanderbilt Ave.

AKRON, OHIO PHILADELPHIA, PA.
Land Title Bldg.

Will Hear DPG Appeal

The appeal in the Dovan Chemical Corporation, vs. Corona Cord Tire Company suit on DPG is scheduled to be heard early in the October term of the U. S. Circuit Court of Appeals for the Third Circuit in Philadelphia. At this writing it appears that the case will be put on the calender on Monday, October 4 as no long case precedes it.

Readers of THE RUBBER AGE will recall that in the Feb. 25, 1926 issue (page 533) a complete report was given of the decision of Judge Gibson in the Circuit of the United States for the Western District of Pennsylvania, which declared invalid Weiss patent No. 1,411,231. This patent was assigned to the Dovan Chemical Corp, and had previously been declared invalid in May, 1923 in the Dovan vs. National Aniline suit. The suit against Corona was a later attempt to validate the patent and the present appeal is for the purpose of proving that the last decision was not in accordance with the facts

Paul Sheeks A Benedict

Paul "Pop" Sheeks, Firestone recreational director and associated with that company for nearly 15 years, was married to Miss Ruth Spitznas of Kenmore, Ohio, September 9. The wedding was held at the bride's home and immediately following the ceremony the young couple left for a honeymoon trip to California and to the bridegroom's old home in Towner, North Dakota.

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WEEKLY MARKET REVIEW ON REQUEST

MICHELIN FAMILY HAS TROUBLE RE-ENTERING U. S.

Jules H. Michelin, head of the Michelin Tire Company, Milltown, New Jersey, together with his wife and daughter, was forced to spend a day on Ellis Island when he returned with his family from Europe on September 8. It was the old story of inflexible application of immigration regulations.

Mr. Michelin took Mrs. Michelin and his thirteen-months-old Annik to Europe several weeks ago. The girl was born abroad, and when she first was brought to America a quota visa was issued to her. Mr. Michelin, who has lived in the United States sixteen years but has not become naturalized, also obtained one. When the family prepared to return to America he obtained re-entry permits for himself but neglected to obtain one for Annik.

The family lined up with the other aliens yesterday after passing the night aboard the French liner Paris, and when they reached the immigration inspectors' desk it was found that because Annik had no re-entry permit she was a deportable alien.

The Michelins got on the Ellis Island tag with the immigrants. They carried their case from one official to another until finally, after they had been detained twenty-four hours, it was decided that the child could land and remain with her parents.

Mat Made With R & H 50

The Roessler & Hasslacher Chemical Company, New York, has distributed to chemists in the industry, a rubber mat vulcanized by the use of R & H 50 in a friction stock similar to that in general use in tire plants. Details of the formula and cure are given on the mat in order that chemists may note the action of the accelerator in this type of compound. One noteworthy feature of this cure is the desirable bloom produced. It is planned by the company to send out similar samples of rubber stock from time to time, showing the use of different types of compounds cured under varying conditions and demonstrating the values of R & H accelerators.

High Tube Production

The tube department of the Salem Rubber Company, Salem, Ohio, which has been in operation for 15 months, recently established a peak production record with a daily output of 1000 tubes. According to E. A. Tinsman president of the company, the plant is running day and night to meet the increasing demand for its product.

CATALPO!

PRODUCTION OF RUBBER FOOTWEAR OFF IN 1925

Industrial Census Shows That Rubber Boot And Shoe Trade in 1925 Was 12% Less Than in 1923—Total Value of Output Is $115,000,000—Overshoes Lead.

A total output valued at $115,934,554 was reported by establishments engaged primarily in the manufacture of rubber boots and shoes, the Department of Commerce announces in making public its biennial census of manufactures covering that section of the rubber industry in 1925. This is a decrease of 12 per cent as compared with $131,739,742 value of the 1923 production, covered by the last preceding census.

The total for 1925 consisted of boots and shoes to the value of $105,398,341 and miscellaneous products valued at $10,536,213. In addition, boots and shoes to the value of $14,524,485 were made as subsidiary products by establishments engaged primarily in the manufacture of other classes of rubber goods. The total production of rubber boots and shoes in 1925 was made up as follows: Rubber boots, 4,739,423 pairs, valued at $16,027,-904; rubber shoes and overshoes, 52,338,-782 pairs, $80,076,608; canvas shoes with rubber soles, 24,999,932 pairs, $23,818,-314.

Of the 23 establishments reporting for 1925, 10 are located in Massachusetts, 4 in Connecticut, 3 in Rhode Island, and the remaining 6 in Illinois, Indiana, New Jersey, New York, Pennsylvania, and Wisconsin. In 1923 the industry was represented by 25 establishments, the decrease to 23 in 1925 having been the net result of a gain of 1 establishment and a loss of 3. The establishments lost to the industry were engaged primarily in the manufacture of boot and shoe findings in 1925 and were, therefore, transferred to the appropriate industry classification.

Hough Promoted

J. K. Hough has been appointed sales manager of the Goodyear Tire & Rubber Company of California. Mr. Hough is well-known in the tire trade of that section and was formerly manager of tire sales for the state of California.

Kidder Joins Ajax

E. H. Kidder, for many years New England sales manager for U. S. "Royal Cords", and until recently general sales manager of The Dunlop Rubber Company at Buffalo, has joined the sales personnel of the Ajax Rubber Company as New England Manager of Sales, with headquarters in Boston.

Mr. Kidder is a native Bostonian, and his return to the district has been greeted enthusiastically by his many friends among the New England rubber trade. Incidentally, in joining Ajax, Mr. Kidder renews an old-time business association with its president, Joseph C. Weston.

Goodyear Employees Election

Keen interest is being shown in the eighth annual industrial assembly election for employees of the Godyear Tire & Rubber Co., Akron, and as the time allowed for filling petitions was shorter this year, closing on September 13, the committee was deluged with petitions during the closing day. Many hot battles are now being waged and will continue until primary election day, September 27. Many representatives will run for re-election and ten senatorial offices expire this year, all of which makes this year's election a lively contest.

Prather With India Tire

C. C. Prather has been appointed sales manager of the India Tire & Rubber Company of Akron. Previous to his association with that company, he was for ten years with the sales division of the Goodyear Company. P. C. Searles, secretary-treasurer of the India Company has also been acting as director of sales and the appointment of Mr. Prather will allow Mr. Searles more time for his other duties.

CATALPO!

aerfloted
ARROW BLACK

PRACTICALLY all the leading rubber manufacturers throughout the world purchase regularly some portion of their carbon black requirements from Huber.

J. M. HUBER, INC.
130 WEST 42ND ST., N. Y. CITY

Giant Balloon

What is said to be the largest squawker balloon ever put upon the market was recently put out by The Oak Rubber Company of Ravenna, Ohio. It inflates almost three feet in length by over a foot in diameter, and the stem is about six

inches long and an inch and a half in diameter. The illustration gives a good idea of its impressive size fully inflated.

Air Mail For Akron

The selection of a landing field on the edge of Akron is expected to mean that that city will have direct air mail service in the near future. W. C. Young, manager of the aeronautic division of the Goodyear Tire and Rubber Company is chairman of the Akron Chamber of Commerce aeronautics committee and believes that the field which has been selected will meet all government requirements.

Rubber Gambler Loses

Alfred Boris Conrad, son of the late Joseph Conrad, the world-famous novelist, has been committed for trial in London on a summons for the alleged fraudulent conversion of £800 ($4,000) entrusted to him for investment by Mrs. Freda Masters. Conrad told her that he lost the money by speculating in rubber on the London Stock Exchange during the boom last year.

RUBBER ESTATE ISSUE INCLUDES DEBENTURES

It is a rare thing for share issues by newly-formed rubber plantation companies to be accompanied by offers to sell debenture notes also. This, however, was the case with the Bintan Rubber Estates, Ltd., which recently put on the London market an issue of £110,000 seven per cent first mortgage convertible debenture notes at par, and 110,000 common shares of £1 each at par.

The company is acquiring as a going concern a rubber estate on an island in the Riouw Archipelago, between Singapore and Sumatra. It consists of about 12,000 acres, of which 3,107 acres are planted. The purchase consideration of £178,000, payable in cash, is for the whole of the issued share capital of a local company now holding the estates free of encumbrance.

The debenture notes, when fully paid, will be convertible at the option of the holder into shares at par up to and including January 1, 1930, the option to be exercisable on and after January 1, 1927. Any outstanding notes will be redeemed at 105 on January 1, 1946.

Puncture Proof Tube

The new puncture-proof tube manufactured by the recently organized Puncture Proof Tube Company of Barberton, Ohio, at the plant of the Northern Rubber Company has been extensively introduced in the southern part of the country and is proving entirely satisfactory, according to officials of the company. Distribution agencies are being established in other parts of the country and production will be gradually expanded. In addition to the punctureless tube, the company is also manufacturing an improved type of rubber patch.

Oldest in Experience

We have been producing carbon black for scores of years building up independent producing plants. We now control in excess of 20,000,000 lbs. annually to insure fulfillment of contracts.

CARBON BLACK
GODFREY L. CABOT, INC.
940 Old South Building, Boston.

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CLASSIFIED ADVERTISING

10 cents a word, minimum charge $2.00, payable in advance.
Address replies to Box Numbers, care THE RUBBER AGE, 225 Fourth Ave., New York.

POSITION WANTED

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AND OTHER EASTERN PRODUCE.

Well trained EXPERT, importer with valuable foreign connections and outlet to American consumers, familiar with every phase of the business from financing and trading to detail work, good salesman, wishes to connect with a strong, reputable and progressive concern. Can show past earnings far in excess of any in other lines. No speculation—only the ordinary business man's risks. Clear record, best references. Compensation desired: Profit and loss sharing and drawing account. Available immediately.

Box 441 — THE RUBBER AGE

HELP WANTED

WANTED: Man who has knowledge of Far Eastern rubber conditions and willing to live there to trade in rubber. Give record, experience and references. Communications will be treated strictly confidential. Box 439, THE RUBBER AGE.

WANTED: A young man with technical education and a few years rubber experience as one of a group of salesmen to handle a fairly complete line of compounding materials. Box No. 440, THE RUBBER AGE.

FOR SALE

FOR SALE OR LEASE

Complete plant, ten acres of land, railroad sidings, ten buildings suitable for the manufacturing of lacquers, paints and varnishes. Machinery and equipment consists of X Day mixers, pumps, motors storage tanks, etc. R. Gelb & Sons, 214 Livingston St., Newark N. J.

FOR SALE OR LEASE

TWO STORY RUBBER GOODS FACTORY, 90 x 125, with foundations for additional story and land to double the size of present plant. In suburbs of Boston. Suitable for sheet, punched, or moulded goods. Now equipped for automobile tires and tubes. Immediate possession on satisfactory cash and terms basis. Brokers protected. Details on request. Address Box 438, THE RUBBER AGE, 225 Fourth Ave., New York City.

FOR SALE

70 H.P., 225/450 R.P.M., 240 volt, D.C., General Electric, CLC.-120, form B, variable speed motor, with control panel. V. M. Nussbaum & Co., Fort Wayne, Ind.

INTERNATIONAL PULP CO., *41 Park Row, New York, N. Y.*
SOLE PRODUCERS OF PURE **ASBESTINE** SPECIALLY PREPARED FOR USE IN RUBBER
Covered and Protected by Letters Patent Registered at U. S. Patent Office, Washington, D. C.
LIBERAL WORKING SAMPLE FURNISHED FREE

EDITORIAL COMMENT

Re-sale Price Control

Rubber manufacturers will be interested in the announcement of Senator Arthur Capper of Kansas that as soon as Congress reconvenes he will renew his fight in the Senate to permit manufacturers and distributors of trade-marked, advertised merchandise to insist upon maintainance of stipulated prices when the goods are retailed. During the last session of Congress Senator Capper sponsored a bill, known as the Capper-Kelly bill, which was designed to settle the question. However, the bill was lost in the closing jam of legislation but the Senator says it will be revived or revised for passage on a compromise basis.

According to the sponsors of the bill, the manufacturers of trade-marked, advertised goods are demanding the right of re-sale price control because they sell the merchant good-will and a waiting market as well as the goods. These things, they say, unadvertised merchandise does not have and it is economically unsound for price-cutting retailers to put the two on the same basis.

A New York manufacturer is offering a prize of $10,000 for the best suggestions for a plan to prevent price-slashing on branded goods. It is clearly shown thereby that the question of price control is not a simple one and Senator Capper may find it a more formidable task to draw effective legislation than it is to pass it.

It is only three years or so since the tire makers discontinued the issuance of consumers' price lists. While some manufacturers made no attempt to hold their dealers to the listed prices, there were many who did. From a legislative standpoint the situation was the same as it was today, that is, the maintenance of a re-sale price could not be forced, theoretically at least. But manufacturers who wished to do so found no trouble in getting around the difficulty. Some objection to the service or the credit or something else of the price-cutting dealer always appeared which allowed the manufacturer legitimately to cease selling to him. It became known that if a dealer was going to take advantage of a demand which advertising had created for certain brands he would have to do so at the prices stipulated by the manufacturer who was paying for the advertising.

Thus it was not from lack of legislation that the consumer price list system broke down in the tire industry. Rather it was from the competition of firms who either did not advertise at all or who were willing to have their goods re-sold at any price so long as they were getting the manufacturer's list. The special brand business entered also. Price maintenance became a farce and was accordingly abandoned. There has been talk of resurrecting the consumer price list but it is doubtful if the competitive situation has changed enough to make its use any more successful than it was before.

The hearings and debate on the Capper-Kelly bill should prove interesting. A careful investigation would reveal plenty of lines in which re-sale prices are already being maintained without legislative backing, but it would also show many in which the competitive factor is its own law in dictating commercial practises.

An Anonymous Advertisement

In the "Personal" classified advertisement column of the leading London newspapers there has been appearing the following advertisement:

"Reclaimed rubber has no RUBBER NERVE like pure rubber. See that there is no reclaimed rubber in your tires, and obtain makers' guarantee".

Since the "Personal" column of classified advertisements appears on the front page of the leading English news organs and is widely-read on account of the unusual nature of its contents, it is sure that this appeal against the use of reclaimed rubber has been seen by thousands of British motorists. The striking thing about it is that it is anonymous. No one claims its authorship or accepts responsibility for it.

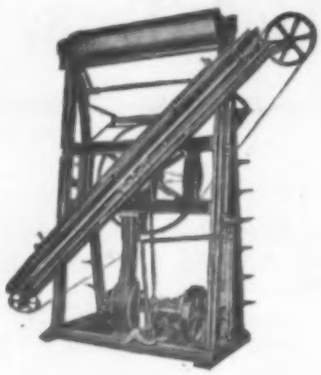
One might suspect that the rubber growers or shareholders in rubber plantation companies were responsible for it since reclaimed rubber has certainly made a sharp difference in the profits they will enjoy this year. Or it might come from one of the British tire manufacturers who have advertised that their tires do not contain a single ounce of reclaimed rubber. Yet anonymous advertising, like anonymous letters, always arouses a suspicion that the writer is not telling all he knows about the person or thing he is trying to discredit. Such advertisements have their effect, of course, but happily the public does not react in the same manner as if some reputable firm or association had attached its name and prestige to the appeal.

Mr. Pearson and the World

The recent change in the ownership of *The India Rubber World*, should not pass without mention of the esteem in which the retiring owner, Henry C. Pearson, has been held in the rubber industry. Under his careful editorship, the *World* has of itself been worthy of the affection of its readers. Yet a good part of that feeling, and it has been wide and abundant, has been directed more toward the publisher who, as he travelled widely in this country and in the tropics, made many lasting friendships.

These friends of the *World* and its publisher have regretted his failing health which for the last few years has made it necessary for him to live in the less rigorous climate of California. His age has demanded that he take still more of the rest which he has so completely earned. And so has come the sale of the journal. In shedding the responsibility of business Mr. Pearson frees himself for leisurely travel. As he sails for the West Indies, his friends wish him the fullest enjoyment of the fruits of his many years devotion to rubber.

As a publication in the same field as Mr. Pearson's *World*, THE RUBBER AGE has appreciated the cleanness and fairness of that journal's competition. It greets the new owner without a doubt that such a pleasant relationship can and will continue.



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Cuts cord or flat woven fabrics with equal ease and precision. Cutting range from 1-4 inch strips to 60 inch. Bias blocks on any angle from the horizontal to 45 degrees.

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Foreign Representatives: Francis Shaw & Co. Ltd., Bradford, Manchester, Eng.

EMBOSSING CALENDERS

For Artificial Leather, Oil Cloth, Carriage and Automobile Covers

DRYING MACHINES

with Copper or tinned iron Cylinders for Cotton Ducks, Drills and Sheetings

The Textile-Finishing Machinery Co.
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PROVIDENCE, R. I.

Est. 1900 Inc. 1919

THE KUHLKE MACHINE CO.

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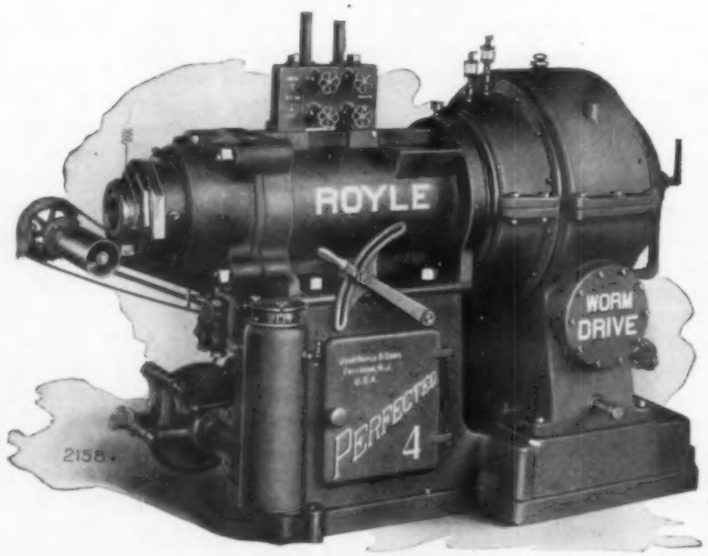


6-inch machine equipped for making inner tubes. Soapstone fittings. Electric heated die. Apron takeoff. *Bulletin* 307.

JOHN ROYLE & SONS, Paterson, N. J.

Changing the Trade Mark Laws

Rubber Men Are Found to Oppose Many Provisions of Pending Program for Revising Registration System

By WALDON FAWCETT

Revision of the trade mark laws of the United States, the need of which is felt in the rubber industry as in all other American industries, was made the subject of a bill before the Sixty-eighth Congress and was studied by the Patent Committees of the House and Senate during the first session of the Sixty-ninth Congress although no bill was introduced. It is expected that the question will be taken up once more when the next session of Congress convenes. In this article the objectives of trade mark reform are reviewed and the merits of the pending program are examined. Mr. Fawcett's analysis may help members of the rubber industry in advising Congress as to the kind of trade mark legislation they want to see finally enacted.

HAVING JOINED, for several years, in the chorus that has demanded of Congress a modernization of the nation's trade-mark system, a number of executives of the rubber industry have suddenly discovered that they are not keen for the reform, now that it appears almost within reach. At least, they do not want a new program of Federal regulation of trade-marks on the terms that are offered. The conservative members of the rubber community continue to recognize and to deplore as much as ever the shortcomings in the trade-mark statutes but they draw back from the proposed revision, fearing that this is a case where the cure is worse than the disease.

Mounting skepticism on the part of a considerable contingent in rubberdom and other industrial fields is one reason why there was no shake-up of the Federal trade-mark registration system at the first session of the 69th Congress. Coupled with a similar eleventh-hour revulsion of feeling with respect to the project for opening copyright protection to original designs in industry, this cooling of enthusiasm has operated to restrain the Patent Committees of the Senate and House of Representatives. And these committees must recommend the new deal in trade-mark certification before a bill can be placed on the Congressional calendar, much less brought to vote.

The difficulty seems to be that too much was taken for granted when the American Bar Association undertook to sponsor a model trade-mark law. Opinion was so general in business circles that the Trade-Mark Act of 1905 had been outgrown and that the Act of 1920 does not really count for much, that there were nothing but "Amens" in rubber trade circles when, some five or six years ago, the national organization of lawyers announced that it would delegate to a special committee of the foremost trade-mark experts in its ranks, the task of rewriting the trade-mark laws. In due course the committee submitted to Congress its carefully-worked-out formula that promised to simplify and cheapen the process of trade-mark certification and, best of all, to make it possible for a brander, in a field such as rubber, to determine with fair certainty in advance, whether any other trader had a prior claim to a brand he proposed to adopt.

The majority of rubber tradesmen were quite content to accept the new trade-mark program on faith. Had it been possible to persuade Congress to act quickly, it is probable that the new arrangements would have been approved without a dissenting voice. But the 68th Congress was deliberate in taking up the measure that was "reported out" of committee. When the Congressional session adjourned without action there was opportunity for careful analysis of the bill by many captains of industry and their legal advisors. As a consequence we have the belated opposition which has come as a complete surprise to many bystanders in business. Conscious only of the manifest shortcomings of Uncle Sam's present system of "clearing" trade-marks, the onlookers are mystified by the attitude of the markers of rubber goods who say that they would rather plod along with the present structure than risk fresh complications.

In order that members of the rubber industry may intelligently take sides, if this question comes up at the next session of Congress, it may be well to take stock of the several objectives of trade-mark reform and then see what the pending program would be likely to accomplish with respect to each. One of the chief grievances of trade-markers, that of seemingly inordinate delays on the part of the Patent Office in turning around on applications for trade-mark registration, has already been allayed by improvement of administrative methods. Where an interval of six or eight months was formerly required to pedigree a trade-mark, the operation may now, with good luck, be completed in a month or little more.

Some rubber fabricators, who are accustomed to trade-mark separately each successive style variation or new model have grumbled sometimes at the high cost of trade-marking. With attorney's charges and official fees, the expense will run $40 or $50 in the case of the average nomination. But there would be little complaint, if it were a case of paying this tax once and taking possession of the coveted trade-mark for a period

of twenty years. Thanks, however, to the endless multiplication of marks, it is more by good luck than good management if a rubber brander's first claim is allowed.

This uncovers one of the principal incitements to trade-mark reformation,—the fact that there exists nowhere in the United States a complete file of the trade-marks in use which may be consulted by aspiring branders in order to determine whether a chosen nickname or design is open to appropriation. While more than 200,000 trade-marks have been registered at the U.S. Patent Office, it is known that there are other thousands of trade-marks in action which have never been registered. Some of these unlisted marks are outside the fold because they are inelegible for registration, for one reason or another. The larger number are hold-outs because their owners know full well that, in the United States, property rights in trade-marks are grounded in use on goods and not in any formality of registration. So they do not go to the trouble and expense of registration. Whatever the details of causes, the hard fact remains that the file of trade-marks at Washington is so incomplete that a "search" will not conclusively determine if a prospective rubber-mark is unique.

The special committee of the American Bar Association proposed to get around this difficulty by grafting upon our present registration system a "deposit" device which would permit a new-found trade-mark to be entered for preliminary enrollment at the Patent Office on payment of a nominal fee of $2. Full-fledged registration could be accomplished later, but, in the interest of 100 per cent enrollment, trade-mark registrants would be penalized by higher fees when they had failed to make deposit promptly. At first glance it appeared that this deposit scheme would be a simple means of bringing pressure to bear upon interstate traders to build up a complete collection of trade-marks. Upon closer examination, however, a goodly fraction of the membership of the rubber community and other industrial groups has vigorously dissented.

How the "Deposit" Plan Would Work

The fear is that the "deposit" gesture would jeopardise the trade-mark equities of old and long-established firms. As the plan is hatched, trade-marks would be accepted for deposit with few questions asked and without comprehensive examination on the part of the censors at the Patent Office to make sure that a deposited mark did not invade or infringe a mark already registered. In other words, the critics forsee this dual system of trade-mark entries as conductive to a situation where Uncle Sam would accord more or less official recognition to every trade-mark offered and would then leave disputants of ownership to fight it out in the courts. That is precisely what the owners of old and valuable trade-marks do not want. They post the sign "Trade-Mark Registered, U.S. Patent Office" in the hope that it will warn off trespassers and they value a Federal registration certificate because it is prima facie evidence of trade-mark ownership in the event of a dispute in the U.S. courts.

Rubber tradesmen appear to be especially apprehensive as to the effect of such a change on the numerous foreign countries where a franchise for the exclusive use of any trade-mark is given to the first individual who applies for it, regardless of whether or not he was the first user of that mark, or, indeed, whether he has ever made bona-fide use of it. Responsibility for safeguarding abroad America's export-marks for rubber and other goods has been a grave one, ever since the expansion of this country's export trade, because all the various foreign countries that hand over a trade-mark monopoly to the first applicant require that the foreigner shall show a certificate of registration in his own country as a prerequisite of registration in alien quarters.

The supplementary law now on our statute books, the Trade-Mark Act of 1920, was provided by Congress expressly to give standing quickly, at foreign capitals, to Yankee trade-marks that do not qualify under the basic U.S. law, the Act of 1905. But this stop-gap law never did all that was expected of it. And now conservative rubber tradesmen are fearful lest the "deposit" expedient would only make matters worse by rendering it possible for pirates to secure deposit slips and, on the strength of these, register in foreign countries marks that really belong to old-established firms.

Multiple Registration Feature

Those executives of the rubber industry, who think only in terms of national distribution, are dubious regarding what is known as the multiple registration feature of the bill that now awaits the vote of Congress. As matters now stand, the brander who is granted a trade-mark registration has an acknowledgement from Uncle Sam of his superior right in the mark for the entire area of the United States. But the pending bill proposes to take official cognizance of the situation which exists when two or more traders, in different sections of the country, are using the same mark simultaneously in non-conflicting territories. The plan is to empower the Commissioner of Patents to recognize "territorial rights" and to register the same mark in duplicate or triplicate to different parties, provided the several sharers of the mark can agree in writing as to their several jurisdictions. Non-conformists in the rubber industry say that such split-ups might be harmless in the case of store-marks or other strictly local brands but that, as applied to manufactures, the effect may be to circumscribe necessary extension in business.

Cautious members of the rubber industry have also communicated to Washington their misgivings with respect to that section of the Trade-Mark bill which recognizes the creation of "secondary meaning in any word or name which has been in substantially exclusive use as a trade-mark for a period of five years preceding application. Certain members of the trade welcome this prospect of certification for geographical terms, conventionally-executed surnames, and descriptive words which cannot be registered as trade-marks under the limitations of present law. But others, who have no selfish reasons for desiring the concession, fear that the effect may be to allow to be "sewed up", by individual concerns, trade terms that should be preserved for the free use of all participants in the industry.

The framers of the bill are sanguine that by minor changes and amendments they can meet all the objections of business men who are satisfied with the integral structure of our present trade-mark system. This will be the direction of their effort in the second session of the present Congress. Some rubber tradesmen insist that what is most needed is not a new trade-mark law but some arrangement that would result in the periodical cutting out of the dead wood in the trade-mark roster, and would thereby eliminate the "abandoned" marks which have been discontinued without public notice but remain on Uncle Sam's books.

U.S. Rubber Plantations Now Cover 117 Square Miles

As a Result of a Policy Adopted Twenty-One Years Ago, the United States Rubber Company Has Invested $25,000,000 in Plantations in Far East and Produces More Than One-Fifth of the Rubber Its Factories Require; Acreage Being Increased By Frequent Purchases.

This Battery of Spray Plants Takes Care of Most of the Rubber Produced on the H.A.P.M. Plantations

THE INTEREST of the United States Rubber Company in rubber cultivation dates back twenty-three years to 1903 in which year the world's production of plantation rubber was only 21 tons. At that time the company adopted a policy of producing a substantial percentage of the rubber required by its factories. Today the company has 134,110 acres of rubber plantation lands in Malaya and Sumatra and is producing more than twenty per cent of the rubber that it needs.

When it first became interested in rubber cultivation, the bulk of the world's rubber was coming from Brazil and the company acquired extensive concessions in South America. However, the venture in that direction did not work out satisfactorily and after several years of effort the project was dropped and the company's energies were directed toward operations in the East.

Sixteen years ago, or in 1910, the United States Rubber Company completed its first surveys in the Far East. As a result, concessions were acquired in Sumatra and 14,000 acres were planted in 1911. This represented then, and still does, the largest planting operation completed by any one company in a single year.

The developed and undeveloped rubber plantation lands now held by the company represent an investment of about $25,000,000. At the end of 1925, 75,433 acres, equal to about 117 square miles, had been planted with some 7,500,000 rubber trees. Of the planted area, about two-thirds or 49,994 acres were in bearing. That acreage produced approximately 20,000,000 pounds of rubber in 1925.

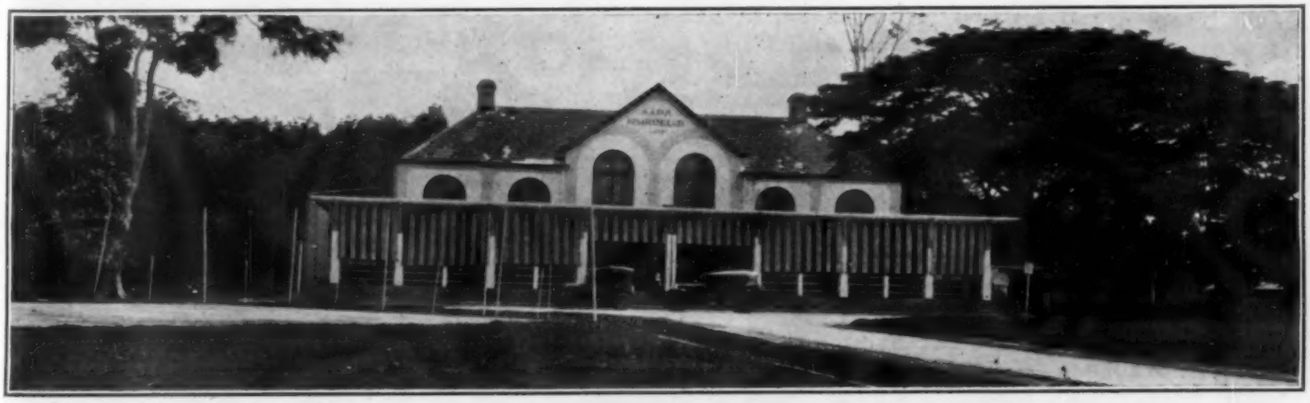
A force of more than 20,000 is continuously employed on the company's plantations. In six years, or by 1931, the company estimates that production will have increased to 35,000,000 pounds per annum due to planting of further areas, maturity of trees already in bearing and to production from trees reaching the bearing stage.

That the management has consistently believed in the policy adopted twenty-three years ago is indicated by the acquisition of new territory from time to time. In July, 1925, 6,300 acres in Kedah, Malaya, were purchased. In December, 1925, 5,700 acres were bought, and early in 1926 the company announced the completion of negotiations whereby 12,500 acres more were added to the holdings. Both of the two last-named properties are located near the company's largest plantation in Sumatra. The cost of their development will be financed out of the income from the plantation properties already producing.

The yield per acre on the company's plantations has been constantly increasing, a factor which those in charge attribute to scientific seed selection, bud-grafting from known high-yielding trees, and to other methods dictated by the most improved practices in the development of which the company has always been a leader.

Substantially all of the 20,000,000 pounds of rubber received by the United States Rubber Company from its plantations in 1925 came to America in the form of sprayed rubber. The process for the production of such rubber is patented and controlled exclusively by the company. Large quantities of rubber are also imported into America by the company in the form of latex which is utilized in various ways, particularly in the manufacture of latex-treated web cord for tire building.

In addition to the above facts, which are based on statements by the officials of the United States Rubber Company, much interesting information concerning the



This Club House Caters to the Comfort of the European Staff on the Sumatra Plantations

plantations themselves was gathered by Frank G. Smith, Secretary of the Rubber Growers' Association of London, when he visited the Far East recently. Mr. Smith has reported his visits to the estates of the United States Rubber Company, in the printed bulletin issued by his association.

All the rubber plantations, states Mr. Smith, are under the administration of W. J. Gallagher, a vice-president and managing director of the United States Rubber Plantations, Inc., an associated company of the United States Rubber Company.

This Building Houses the Main Offices of the Plantations Company at Kiseran, Sumatra.

The group of estates in the Malay Peninsula are registered in the name of Malayan American Plantations, Limited. M. D. Knapp is the company's inspector in Malaya.

The total area held in Kedah is 22,183 acres of which 15,802 acres are cultivated at this time. In Johore the holdings amount to 5,408 acres of which 4,515 acres are cultivated. Of the 2,099 acres held in Selangor, 1,915 are planted. Totalling these, it is seen that the company holds 29,690 acres in Malaya with 22,232 acres already in cultivation.

Harvard estate in Kedah is the latest plantation which is being opened up and when the planting program is completed at about the end of 1926, the total area under rubber there will be 6,300 acres. Extensions are also proceeding on two other Malayan estates and the total planted area on the company's Malayan holdings will soon reach 28,600 acres.

Most of the rubber in Kedah, Mr. Smith reports, is planted 200 trees to the acre, with alternate rows of buddings and selected seeds. The budding material comes from the Sumatra estates, mostly from the Hollandsch-Amerikaansche Plantage Maatschappij, known over the East as H.A.P.M. Nurseries are established on all estates in Malaya for propogation purposes. Near Dublin estate in Kedah there is an experimental garden of ten acres, established in the jungle in order to avoid cross pollination from outside areas. The material is proved strains from high yielding clones.

All the Malayan estates are well equipped with up-to-date coolie lines, hospitals, and everything is done for the comfort and well-being of the coolies.

On December 31, 1925, there was an Indian population of 6,027 (including children) on the Malayan estates. During 1925, 2,806 or almost fifty per cent were recruited from India.

In Sumatra the properties are operated by three companies which are all controlled by the United States Rubber Plantations, Inc. The largest of these is H.A.P.M. which holds 94,066 acres of which 47,661 acres are planted. The two other companies operate much smaller acreages, amounting to only 9,759 acres when taken together. Of this area, 5,538 acres are planted. The total holdings in Sumatra are 103,825 acres and the total planted area in that island is 53,199. Extensions are steadily being made.

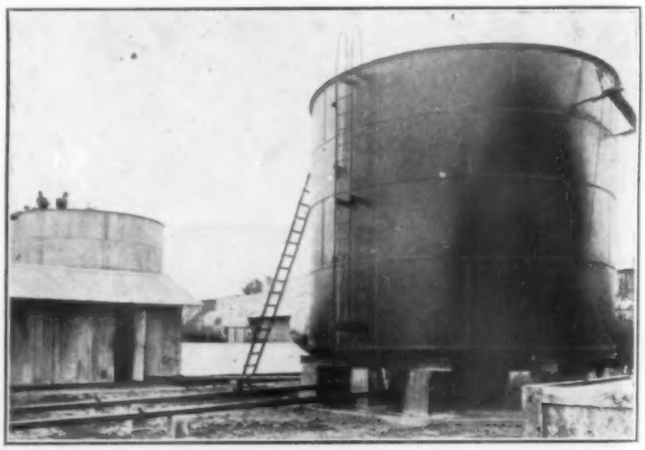
Mr. Smith speaks of his visit to the estates in Sumatra as an education in itself. One is struck, he says, by the wonderful organization with its headquarters at Kisaran. There are well-equipped coolie lines and hospitals, the comfort and well-being of the workers being carefully studied. Bungalows for the supervisory staff are models of modern estate equipment, while an excellent club house caters for the European staff.

The Production of Sprayed Rubber

All latex on the Sumatra properties is turned into rubber by the Hopkinson spraying process (latex-sprayed rubber). The spray plant on the H.A.P.M. is at Soengei Boenoet, where the factory comprises six spraying units and two in process of construction. These will be capable of turning out more than 20,000 tons of dry rubber per year. These plants deal not only with latex from H.A.P.M. estates but with latex collected from surrounding estates, the proprietors of which have made contracts to deliver such latex.

The spray plants work continuously except when they stop for wall cleaning. The employees work in three shifts of eight hours each per day. The latex is sprayed by the Hopkinson process, pressed and baled, and is afterwards dispatched to New York. The sprayed rubber falls on a floor of movable trays. About every forty-five minutes a tray is withdrawn. Within an hour, on the average, of leaving the spray plant the rubber is in a railway car ready for shipment.

The collection of latex from the rubber areas is by means of tanks on Ford lorries, each holding about 250 gallons. The rubber from nearby estates is brought to the factory on lorries. From the more distant estates it is brought on tank lorries to the nearest railway station where it is discharged by gravity into a storage tank. Such a tank holds about 80 tons. From these it is driven by pressure into railway tank cars and then transported to the factory at Boenoet.



Latex Storage Tank in Sumatra in Which Latex is Held Pending Shipment to Spray Plants or the United States

It is interesting to record that two Hopkinson plants

[*Continued on Page* 554]

Rubber Plantation Securities

Due to Investors' Faith in Rubber, Quotations for Shares Have Not Receded in Keeping With Price of Crude Rubber

By A. C. Blackall

THAT THE past few years have been anxious ones for holders of rubber plantation securities goes without saying. When the price of crude rubber fell to the point where practically every pound sold was representing a dead loss to producers, shares in rubber plantation companies were practically unmarketable or very heavy losses were incurred when realizations were possible.

After the coming of the Stevenson restriction scheme, the pendulum finally swung the other way. As the price of crude rubber began to soar, rubber shares commenced to rise. New flotations were rendered possible. Many companies added to their holdings. Rubber planting gained substantial ground. From being unprofitable ventures rubber shares quickly became veritable money spinners.

Under such conditions, speculation naturally rose to fever heat. Dividends rose in certain cases to 100 per cent or over and rubber investments became the idol of the hour. All new issues were subscribed for many times over, and any property with even a few acres of rubber could have been sold for a startling price. It is only fair, however, to say in this connection that but little profiteering took place and the majority of the properties marketed were not over-valued or over-capitalized.

Prices Drop on Profit Taking

Naturally the speculative element was very greatly impressed with the vast possibilities, but when the price of the commodity commenced to fall, speculators and the weak-kneed investors began to take their profits. As a consequence, prices of shares fell away from the giddy heights they had attained, but in most cases the fall was never allowed to be carried to excess since the believers in the future of rubber remained steadfast to their faith and many of the cognoscenti stepped into the breach and increased their holdings.

This was largely the case with original shareholders who had, or at any rate fancied they had, something much more tangible to go upon than the froth and effervescence of momentary spectacular figures brought about by a boom in which they had but little inclination or desire to take part. They were the solid backbone of the market and it can accordingly be safely asserted today that the shares in the majority of cases are "well held", a circumstance which augurs well for the future of rubber investments.

Investment may not always appear to be the correct word to use with regard to such a highly speculative commodity as rubber, but in this instance it would appear to be the correct one, especially since a very large number of share holders are also interested to a considerable extent in the manufacturing end of the trade. A great many more are practical rubber experts who have spent years of their lives on the plantations or estates, and are therefore intimately acquainted with the industry's technical details as well as its potentialities and its requirements. Most of these men are infinite believers in the future of rubber and are not scared by any price fluctuations, be they ever so meteoric.

This unfaltering belief in the potentialities of rubber will explain why rubber shares have not depreciated anything like the price of the commodity itself although rubber shares cannot be classed among the real gilt-edged securities. At the same time, some of the best-posted men sensed the impending fall and took advantage of it to sell a certain portion of their holdings at peak prices, trusting to re-purchase on more advantageous terms on a falling market.

Shares Sold and Later Repurchased

As an illustration, a number of Rubber Trust Companies have done exceedingly well by taking advantage of the high prices recently offering for shares. To quote only one instance, at the general meeting of the British North Borneo Rubber Trust, held on July 21, the chairman announced that by selling a portion of their holdings in certain companies and repurchasing at a later date, they made a profit of £42,000 ($210,000). This is a small but a typical and up-to-date instance.

Bearing out the foregoing remarks, it becomes interesting to note to what extent the recent fluctuation of the price of crude rubber has influenced share prices of a few of the plantation companies. In all cases it must be borne in mind that the peak price of rubber was reached in July, 1925, 4s 6½d ($1.09) and the low level (up to the end of July) was reached in June, 1926, at 1s. 8d. (40 cents.)

The Abaco Company (Selangor) £1 shares ranged from 31s 11¼d to £5 5s. ($7.66½ to $26.20) in 1925, but in 1926 fluctuated only between 77s and £5 ($18.48 to $25), the dividend being increased by 50 per cent. Their price is now around $19.20.

Examples of Price Fluctuations

The Allagar Rubber Plantations shares of 2s (50 cents) which last year touched $1.44 and 33 cents, highest and lowest respectively, have this year moved only between $1.26 and 84 cents. The present price is $1.05, the dividend being at the rate of 20 per cent. They are thus yielding approximately 8 per cent.

These are not selected cases but merely the first two Malayan companies quoted on the official list and may be taken as typical examples. For purposes of comparison, we may next take two of the high dividend paying concerns.

The Bahru Selangor Rubber Company's 2s shares, which last year paid 75 per cent, moved between 81 cents and $3.45, but this year, up to the end of June, the fluctuation has been considerably less, between $2.04 and $2.26; the present price is around $2.50 (with an interim quarterly dividend of 15 per cent), thus returning to shareholders at today's price about 15 per cent.

It is a somewhat noticeable fact that the 2s. (com-

monly called florin) shares generally speaking are decidedly more liable to great fluctuations than the higher priced ones. This is probably accounted for by the fact that the average man in the street can deal in far greater quantities on a limited purse. Thus, they are far greater gambling counters than the higher priced varieties, although they may represent equally good properties.

It must be remembered that most of the estates possess considerable reserves of untapped or momentarily untappable trees, and all these circumstances are taken into account in assessing share values. Apart from this, certain shares are popular, or they happen to be the fashion of the hour, and consequently attract more attention than others. These, of course, being largely gambled in, are liable to far greater fluctuations than they deserve when their values are seriously considered. It has been said that during the great boom of a few months back the daily bargains taken in trading the shares of popular companies were frequently a hundred times or more than the total number of shares issued in the companies, a circumstance which would naturally cause wide difference in price variations.

The professional gambler, however, seems to scent out when the shares are well held, and seldom takes liberties with them, fearing that a bull or a bear squeeze may upset his calculations. That factor alone is one reason why the smaller companies with cheap priced shares are far more popular as gambling counters than the shares of higher denominations.

Another of the high dividend yielding companies (another "floriner") is the Bukit Cloh, which paid 68¾ per cent in 1925, with a 12½ per cent interim early in 1926. Here the fluctuations were between 87 cents and $2.90 in 1925, but in 1926 they were between $1.97 and $2.73. Today's price is round about $2.50.

We will now cite two of the smaller dividend concerns. The first on the list is the Bukit Tupah, which in April last paid a 5 per cent dividend against 7½ per cent for the whole of 1925. Here the shares in the earlier year named showed great variations in prices, ranging from $2.24 to $8.70, yet this year the variations have been between $5.10 and $8.46, and today are steady at $5.75.

Another company, the Galang Besar (another florin company), which last year paid no dividend, has this year paid an interim of 5 per cent. Here the fluctuations in 1925 were very wide, ranging from 9 cents to $1.02. This year the variations are far less marked, having been from 57 cents to 85 cents and today the price stands at 57 cents. However, this company, out of a total area of 2,500 acres, has over 2,000 in reserve, but tappable.

These examples tend to show that, generally speaking, today's prices are well above the lowest of the year, and, as will be seen, they represent 2 high, 2 low, and 2 medium dividend payers, facts that amply demonstrate the faith that shareholders have in the future of rubber.

Among the high dividend payers that belong to Java, the Simo Rubber Estates stand alone as having paid 150 per cent in 1925. In that year their florin shares oscillated between $2.50 and $8.64. This year the changes are far less marked, ranging from $5.50 to $8.34, today's price being $6.75. This company, however, in 1925 produced its full quota, its whole area of 4,500 acres being tapped, while this year it has adopted voluntary restriction.

The Sumatra, Ceylon, Borneo, Sarawak, and Indian and Burmah plantation companies' shares all tell much the same tale, and in nearly all cases today's prices are well in excess of the lowest of the year, notwithstanding the market price of rubber. Of course, these prices have to a certain extent to be slightly discounted owing, in most cases, to the near approach of further anticipated dividend announcements.

The U. S. Rubber Company Plantations

[*Continued from Page* 552]

are being installed on the Anglo-Dutch Plantations in Java. One is already working. A development of the Hopkinson spraying process is the "baby" plant, one of which is being erected in England and another in Sumatra, and shortly one will be begun in Malaya. This small spray plant unit has been designed for use on small rubber estates of 1,000 to 1,500 acres, although a plant can be designed for any size up to the present maximum of 500,000 pounds per month.

An interesting development in Malaya and Sumatra is the shipment of latex from Eastern ports to the United States. The latex is collected on the estates into tanks specially erected for the purpose. The latex is weighed and transferred to tanks on motor lorries, whence it is transported to a storage tank at the nearest railway station. It is then conveyed on railway tank cars to the port of shipment, run into tanks in lighters, and thence driven by compressed air into the tanks of ordinary freight steamers. The principal use of latex in the United States is in connection with the impregnation of cord fabric for the manufacture of motor tires. It is, however, used in many other processes.

H.A.P.M. has been one of the pioneers of rubber research and their recognition of the value of scientific research has done much for the rubber industry as a whole, Mr. Smith is free to admit. Besides being supporters of the R.G.A. and the A.V.R.O.S. Experiment station, H. A. P. M. some years ago established their own scientific research department of which the director of research is J. Grantham. The total expenditure of the United States Rubber Plantations, Inc., on research is over $1.20 per acre per annum. The research laboratories are at Kisaran, the headquarters of H.A.P.M. Mr. Smith lists the following experiments as being actively followed at H.A.P.M.:

Effects of different types of manures on different types of soils.

Comparison of yield from trees derived from budding with that of trees derived from selected seeds.

Comparing different systems of tapping, such as 1/3, ¼ or ½ of the circumference.

Comparing "resting periods" varying from two weeks to six months.

Comparing yields on budded and non-budded trees at different heights from the ground.

Investigating yields on different ages of renewed bark.

The H.A.P.M. have been the pioneers of bud grafting and the total area of bud grafted trees on estates controlled by the United States Rubber Plantations, Inc., is about 10,000 acres.

The research staff of five people has its laboratories at Kiseran, headquarters of H.A.P.M.

Census Shows Big Tire Production

Government Statistics Covering Manufacturing Reveal Many Interesting Facts in Tire and Tube Industry

FOLLOWING A preliminary news story in the August 25 issue of THE RUBBER AGE to the effect that the value of the products of the United States tire industry in 1925 had reached almost to one billion dollars, the Bureau of the Census has issued a detailed report in mimeographed form which contains many additional facts of interest to the industry. According to the announcement, in the biennial census of manufactures of 1925 the establishments engaged primarily in the manufacture of rubber tires and inner tubes reported a total output valued at $925,032,833. This was an increase of 43.6 per cent as compared with $644,193,697 in 1923, the last preceding census year.

Of the total for 1925, $822,138,213 was contributed by tires and tubes and $102,894,620 by miscellaneous products. Tires and tubes are also made to some extent as secondary products by establishments engaged primarily in the manufacture of other rubber goods. The total production of tires and tubes by all establishments which reported their manufacture for 1925 was valued at $824,548,604 and was made up as follows: Automobile and truck casings, 58,784,073, valued at $656,491,733; automobile and truck inner tubes, 77,387,836, valued at $118,234,658; motorcycle and bicycle casings, 2,080,773, valued at $3,564,933; motorcycle and bicycle inner tubes, 430,888, valued at $396,394; solid rubber tires for trucks, 1,035,226, valued at $43,870,387; other solid rubber tires, valued at $1,990,499. The production of automobile and truck casings and inner tubes increased materially as compared with 1923, but motorcycle and bicycle casings and inner tubes showed pronounced decreases.

Of the 126 establishments reporting for 1925, 44 were located in Ohio, 11 in New Jersey, 11 in Pennsylvania, 7 in California, 7 in Indiana, 5 in Connecticut, 5 in New York, 5 in Wisconsin, 4 in Iowa, 3 in Illinois, 3 in Maryland, 3 in Michigan, 3 in North Carolina, and the remaining 15 in Alabama, Colorado, Georgia, Massachusetts, Minnesota, Missouri, Nebraska, Oregon, Texas, Washington, and West Virginia. In 1923 the industry was represented by 160 establishments, the decrease to 126 in 1925 having been the net result of a gain of 4 establishments and a loss of 38. Of the 38 establishments lost to the industry, 22 went out of business prior to the beginning of 1925 and 16 were idle during the entire year.

Table No. 1 gives many details concerning the operations of the tire and tube producers aside from the value of their products.

TABLE 1

GENERAL STATISTICS, U. S. TIRE AND TUBE INDUSTRY, 1925 AND 1923

	1925	1923	Per cent of increase or decrease (—)
Number of establishments	126	160	—21.2
Wage earners (average number)*	81,670	73,963	10.4
Maximum month	Aug. 88,535	Apr. 86,645	—
Minimum month	Jan. 75,340	Oct. 60,376	—
Per cent of maximum	85.1	69.7	—
Wages	$120,614,081	$108,623,102	11.0
Cost of materials (including fuel, electric power, and mill supplies)	$559,939,811	$365,165,016	53.3
Products, total value	$925,032,833	$644,193,697	43.6
Tires and tubes	$822,138,213	$563,258,387	46.0
All other	$102,894,620	$80,935,310	27.1
Value added by manufacture**	$365,093,022	$279,028,681	30.8
Horsepower	403,227	370,551	8.8

*Not including salaried employees.
**Value of products less cost of materials.

Table No. 2 shows how the tires and tubes produced in 1925 divide as to types. It will be seen that 58,784,073 automobile and truck casings were produced with 77,387,836 inner tubes for use in connection with them. The number of bicycle and motorcycle casings is far beyond the number of tubes for such vehicles due to the use of single-tube bicycle tires. That most of the new motor trucks put on the roads within the last two years are on pneumatic tires is indicated by the fact that the increase in the production of solid truck tires is far below the known increase in the number of trucks. The only real decreases in production are in the motorcycle and bicycle classes.

TABLE 2

U. S. TIRE AND TUBE PRODUCTION, 1925 AND 1923

	1925	1923	Per cent of increase or decrease (—)
Total value	$824,548,604	$569,130,559	44.9
Products of the industry proper*	822,138,213	563,258,387	46.0
Subsidiary products of the other rubber industries**	2,410,391	5,872,172	—59.0
Pneumatic:			
Automobile and truck—			
Casings—			
Number	58,784,073	45,425,591	29.4
Value	$656,491,733	$458,107,709	43.3
Inner tubes—			
Number	77,387,836	57,229,225	35.2
Value	$118,234,658	$74,982,725	57.7
Motorcycle and bicycle—			
Casings—			
Number	2,080,773	3,668,114	—43.3
Value	$3,564,933	$5,016,050	—28.9
Inner tubes—			
Number	430,888	642,696	—33.0
Value	$396,394	$672,955	—41.1
Solid:			
Truck—			
Number	1,035,226	944,337	9.6
Value	$43,870,387	$29,060,586	51.0
All other—			
Value	$1,990,499	$1,290,534	54.2

*The term "industry proper" refers to the group of rubber factories engaged primarily in the manufacture of rubber tires and inner tubes.
**Represents rubber tires and tubes produced by branches of the rubber industry whose principal products are rubber footwear or other rubber goods.

Wherever it can be done without disclosing the operations of individual establishments, the Bureau of the Census has divided its figures by states. In some cases the production of a state is so predominately that of one well-known factory that it appears impracticable to report that state separately. Table No. 3 shows the production by states, as reported by the Bureau. The leading position of Ohio is clearly seen, with Wisconsin in second place, followed by New Jersey. However, certain of the states grouped under the term "other states" reported the manufacture of greater quantities of casings and tubes than did some of the states separately set forth.

TABLE 3

PRODUCTION OF AUTOMOBILE AND TRUCK CASINGS AND TUBES, BY STATES

	Casings		Inner tubes	
	Number	Value	Number	Value
United States:				
1925	58,784,073	$656,491,733	77,387,836	$118,234,658
1923	45,425,591	458,107,709	57,229,225	74,982,725
Ohio:				
1925	33,492,000	376,694,654	42,183,740	60,785,614
1923	26,326,665	257,267,935	30,831,097	39,686,299
Wisconsin:				
1925	3,955,631	36,746,173	5,307,135	7,249,890
1923	2,160,206	21,832,594	3,101,356	3,709,488
New Jersey:				
1925	2,377,882	28,783,693	4,111,853	8,929,497
1923	2,107,779	23,424,445	3,691,060	5,818,498
Pennsylvania:				
1925	1,400,084	18,700,557	2,230,889	3,630,025
1923	1,417,207	16,262,369	2,658,628	3,120,921
Other States:				
1925	17,558,476	195,566,656	23,554,219	37,639,632
1923	13,413,784	139,320,366	16,947,084	22,647,519

The importance of Akron, Ohio, as a tire manufacturing

[*Continued on Page* 556]

Health Hazards of Benzol

THE CHEMICAL and Rubber Sections of the National Safety Council which were directed in the spring of 1923 to make a thorough examination of the health hazards of benzol or benzene have issued a final report which will likely be of the greatest interest to rubber factory managers and executives. The commercial uses of benzol have grown steadily since 1890 but particularly since 1915 and the numerous cases of benzol poisoning led to the committee's appointment and work. Of such cases the rubber industry has had its full share. The Hood Rubber Company provided the services of an industrial physician to facilitate the committee's work.

There are two types of benzol poisoning—acute and chronic. Acute benzol poisoning arises from leaks in pipes or a sudden discharge of the vapor or from a workman's entering a tank in which benzol has been used or stored. Such cases are uncommon in the rubber industry. Chronic benzol poisoning results from continuous or repeated exposure to benzol fumes in lower concentrations and it is from this type of poisoning that many rubber workers have suffered. The most common symptoms of chronic benzol poisoning are general systemic disturbances and pallor with a destructive influence upon the blood cells and the blood forming organs.

Benzol Vapor Injurious

In certain industries benzol is used chiefly as a solvent or as a vehicle, and as a part of the process it must be removed so as to leave the originally dissolved substances in place. For such a use it has been widely introduced into the rubber industry. Two exceedingly important uses for benzol in the rubber tire factory are in connection with cementing cores preparatory to tire building and in moistening plies of frictioned fabric before the next layer is applied. In both of these cases, as in many other places in the rubber industry, the benzol is removed by evaporation and is hence found in the air which the workers breathe.

The committee found that cases of benzol poisoning in the rubber industry are by no means new. Chronic benzol poisoning of workers in a German rubber factory was reported in 1897. The first fatal cases in the United States occurred in 1910 when workers in a tin can factory died from breathing benzol evaporated from rubber seals. The record of troubles with benzol in rubber factories has been a rather serious one since that time.

In the course of its investigation the committee distributed a questionnaire to a large number of American factories thought to use benzol. Among the companies reporting the use of appreciable quantities were ten rubber factories, seven of which stated that they had had poisoning cases. One company reported three deaths believed to be due to benzol fumes; all other cases had been less serious. The committee regards the danger of chronic poisoning in the rubber industry as very great.

Detection of benzol poisoning in its early stages with prompt removal from exposure generally leads to complete recovery. If the case is a severe one, however, certain of the symptoms may persist for a long time after exposure has ceased and nearly one in five of the cases reported in literature reviewed by the committee died.

Precautions Recommended by Committee

In order to minimize the benzol poisoning hazards, the committee recommends two general types of precautions: The use of enclosed processes wherever possible together with the most effective local exhaust ventilation, and thorough and regular medical inspections of exposed workers with particular reference to blood counts.

In their search for solvents with which benzol could be replaced in order to remove the health hazard, the committee found that certain of the higher homologues of benzene, such as toluol, xylol and Hiflash naptha are relatively free from the hazards which attend the use of benzene itself. These substances, in large doses, are even more powerful narcotics than benzol, but their low volatility and marked odors make it highly unlikely that they will occur in workroom air in sufficient concentration to produce chronic poisoning. Furthermore, they are almost wholly lacking in those specific destructive effects upon the nerve tissue and blood-forming organs which are so characteristic of benzol. It is accordingly believed that rubber manufacturers will give serious attention to the committee's recommendation that wherever manufacturing processes make it possible, one of these or other relatively harmless substances should be substituted for benzol.

Retarding Oxidation of Rubber

British Patent No. 220,230.

The deterioration of rubber by oxidation is retarded by the inclusion of a proportion of the condensation product which is obtained from a 50 per cent aqueous solution of acetaldehyde (one and one half gram molecules), and a solution of aniline (one gram molecule) in a liter of normal hydrochloric acid. The reaction product, which is used after being dried, does not accelerate the vulcanization of rubber in any appreciable manner, and does not interfere with the use of the customary accelerators. It may be introduced by means of the ordinary mixing operations, by absorption from a solution or by successive exposure of the sheeted material to aniline and acetaldehyde vapors. Its use enables vulcanization to be effected in direct contact with air. The preservative effect of the above "acid" condensation product can also be obtained by using a larger proportion than customary, for example exceeding one per cent of the accelerating condensation product, which is obtained from the same reagents in less acidic solution.

Census Records Big Production

[*Continued from Page* 555]

center is so great that the Bureau of Census has developed a special compilation to give the details of the tire industry's operations in that city. The figures are shown in Table 4.

TABLE 4
AKRON, OHIO, TIRE AND TUBE INDUSTRY, 1925

Number of establishments	11
Wage earners (average number)*	43,391
Wages	$66,460,705
Cost of materials	$282,464,965
Value of products	$480,330,347

*Not including salaried employees.

The manufacture of motorcycle and bicycle tires and inner tubes in 1925 was reported by 13 establishments located in Connecticut, Indiana, Massachusetts, New Jersey, Michigan, Ohio, Pennsylvania, and Wisconsin. Over 40 per cent of the total number of casings were produced in Wisconsin and more than 30 per cent in Indiana; and of the total number of inner tubes manufactured, 39 per cent were produced in Ohio and 36 per cent in Indiana. The manufacture of solid tires for trucks was reported by 17 establishments located in Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, and Ohio. More than 76 per cent of the total number produced were reported from Ohio. State figures for the foregoing cannot be given without the possibility of disclosing the operations of individual establishments.

The last compilation of the Bureau of the Census refers to the crude rubber consumed during 1925 by establishments engaged primarily in the manufacture of tires and inner tubes. It is shown that such establishments used 335,873 long tons of rubber and had 29,666 long tons on hand at the end of the year. Of the total consumption, 195,152 long tons were used in Ohio.

Other reports will be issued covering the operations of other sections of the rubber industry. The next industrial census will be taken in 1928 to cover 1927.

The London Letter

The GENTLEMAN FROM MINCING LANE will report current opinion in London's famous rubber market in every issue of THE RUBBER AGE

This Week the Gentleman Says "Blow-Outs Make the Rubber Market"

LONDON, September 14, 1926.

EVERYTHING RUBBER this fall hinges on the American demand. There is no doubt but that Rubber London quite confidently expects American tire users to buy substantially more tires in the last half of the year than they did in the first half. It is pointed out that in the first six months, American gasoline consumption increased 15%, car production increased 12%, while the sales of tire casings were 12% lower, and tubes 23% lower.

Surely the vice-president of the Miller Rubber Company cannot be far wrong when he is quoted as saying that America's 1926 demand for rubber will be on the basis of 40% in the first half year and 60% in this half. If so, then American buying will prevent a glut this Fall and will save the situation, and nothing need be done about the cancellation of the unused coupons. These now amount to about 40,000 tons, 24,000 tons for Malaya and 16,000 tons for Ceylon. With these coupons outstanding, a 20 per cent cut in the export quota for British estates would be largely negatived. Should American demand stiffen to prevent a big oversupply of rubber, there will be no need for a drastic cancellation of these coupons. However, it seems probable that some steps will be taken to remedy this difficulty so as to prevent a continuation or recurrence of such a situation in the future.

Mr. H. W. Hewitt, managing director of the Pelepah Valley Rubber Estates, at the annual meeting of that company advocated the cancellation of unused coupons issued prior to 31st July. He also believed that closer British market control should be arranged by reducing the standard allowance of 500 lbs. per acre, as it is at present, to 425 lbs. per acre; and again, he favours the re-assessment of all estates. Commenting on Mr. Hewitt's speech, a writer in "Truth" points out that the assessment of the estates automatically comes up for revision at the end of next month, it being the end of the rubber year.

HOWEVER, THE whole British position as to the remainder of this year is simply as follows:—prices have dropped steadily; the August average price was 1/7.47d., July's average 1/8.29d., the quarter ending July 31st averaged 1/9.001d., and the first seven months of the year had an average of 2/1¾d. Although it is still early, the present prospect is that the 20% reduction will be made; prices have shown a tendency to harden this past week, but the ⅛d. advance will have to be substantially accelerated so as to provide an average price for September and October of over 1/10d., in order eventually to raise the quarter's average to 1/9d.

The advance in London stocks continues unchecked, the total on September 11 being 32,011 tons. Unused coupons also are increasing, now being reported up to 40,000 as indicated above.

Production of British rubber in July was on a larger scale than in previous months of this year. The Malayan estates produced 105 per cent of their standard production in that month. For the first six months of the year they had been able to produce only 85½ per cent of their standard.

In July the Ceylon estates also increased their production but they were not able to come all the way up to their standard. Only 97¼ per cent as much was produced on the Ceylon estates as their export permits called for. That this was a great increase, however, is shown by the fact that during the first six months the Ceylon estates produced only 70¼ per cent of their standard. The Borneo estates, like Malayan, produced more in July than their standard production called for. Java and Sumatra estates fell short of what has been taken as their standard, the output being only up to 92 per cent.

THUS THE rising tide of production continues, and is likely to continue with prices at remunerative levels, and the Fall position hinges, as usual, on the volume of American buying. When August exports from Malaya, the largest for any month this year, are compared to those of July, they show an accelerated movement to the United States and United Kingdom, with a reduction to continental countries. As the European figures are small compared to the American imports, the American Sept.-Dec. demand will determine whether or not it is going to be necessary for London to jettison the excess coupons load to free the Stevenson ship for rough weather. Certainly the statistical position would not permit another six months excess of production over demand, without breaking down the calm confidence of Mincing Lane.

Inasmuch as the whole difficulty in 1925 arose because the Stevenson scheme did not make due allowance for the dangerously low level of London stocks, as well as other stocks which rise and fall with the changing level of London stocks, a suggestion has been made that the Stevenson scheme should be amended so that releases should be determined, not only by average prices, but equally by average stocks in London during a certain period. Of course this change does not interest the leaders of the planting companies just now, who are trying the experiment of accumulating stocks themselves up to 1/12 of their annual output.

"Sitting pretty", I believe, is the expression which you would apply to the happy position of the British rubber growing industry today, but as I prefaced my ruminations so, I will conclude them,—What are you rubber tire bursters going to do this Fall? Will you buy 25% more this half year than in Jan.-June? London is very much interested to know!

Yours Faithfully,

THE GENTLEMAN FROM MINCING LANE.

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DU PONT

Rubber Production and Trade

Developments in the Preparation of Plantation Rubber

The following is an abstract of the paper which Dr. Henry Stevens of the Rubber Growers' Association of London would have read at the Crude Rubber Symposium at Philadelphia had illness not forced his return to England:

There are no radical alterations to be looked for in the preparation of plantation rubber. As a whole, present methods are satisfactory. The product is good and the general principles are correct. The most to be expected is an improvement in details of preparation of sheet and crepe of greater uniformity and greater freedom from mold spots and other defects.

No longer should the use of acids or other chemicals for coagulating be condemned or even questioned. The present deficiency in uniformity is due chiefly to the large number of estates, some of which are not as up-to-date as others, and to the mingling of rubber prepared on plantations with that prepared by natives.

In regard to acidity, it is not always realized that the amount of acid is extremely small and that the acid used is a volatile one. One part of acetic acid coagulates 1,200 parts of latex diluted to 2 pounds of dry rubber per gallon. The presence of acid cannot be detected by ordinary re-agents. Acid is harmful if used in large excess particularly in the case of a strong, non-volatile acid, like sulphuric.

Alum is not as bad a coagulant as has been supposed. It does not damage the rubber although it retards the cure. DeVries regards it as a very suitable coagulant for native producers, the retarding action being counterbalanced by allowing the rubber to mature. The objection to sulphuric acid is its influence on rate of cure, amounts above one part in 2,000 of standarized latex having a notable retarding action. Apart from its influence on rate of cure, sulphuric acid has no deliterious action on the caoutchouc molecule. Samples of rubber produced 20 years by its use are still in good condition.

Sodium fluosilicate is also an effective coagulant, although the fungicidal properties hoped for it have not materialized. This compound also has the decided advantage of preventing gaseous fermentation in latex. And because it is a clean dry powder which can be added directly to the latex, it should be an ideal substance for the native to handle. Like alum, it retards the cure.

Formic acid is a more effective coagulant than acetic acid, and rubber prepared from it has the same quality and rate of cure as that coagulated with acetic acid. Furthermore, its present price makes it more economical than acetic acid. One pound of formic acid coagulates twice as much latex as one pound of acetic acid. For these reasons, formic acid will gradually replace acetic.

The smoking operation, as carried out in recent years, has justified itself. Though it has little influence on the quality of the raw rubber, it makes the rubber more resistant to mold.

Experiments dealing with the fungicidal action of numerous substances have shown that para nitro phenol and 3-5 dinitro ortho cresol are the most promising. These can be used either by dipping the sheets in their solutions or by adding either of them to the dilute acetic acid used for coagulation. In either case, a very small per cent is sufficient.

The present lack of firewood for the smoking process would tend to lead to an increase in the production of crepe rubber but the extra washing required for crepe would overtax the capacity of the washing equipment of many estates if only crepe were produced. Therefore, the use of fungicides in unsmoked sheet rubber is rapidly becoming an economic necessity.

The very pale crepe required for the manufacture of crepe soles has to be prepared by fractional coagulation. This consists in first adding an amount of acid sufficient to coagulate only about 10% of the rubber in the latex. This rubber is then removed and more acid added whereupon an exceptionally pure pale rubber is obtained. The first fraction is dark yellow, contains the greater part of the nitrogen and surprisingly is more difficult to mill than the purer second fraction. Fractional coagulation does nothing to improve the quality of the rubber, and merely meets an artificial demand for a very pale product.

Regarding packing, most troubles would be avoided if only the boxed rubber were delivered as packed in the east direct to the manufacturer. But the sampling operation with its attendant opening of the cases allows the admission of dirt and splinters, with the consequent arrival of the rubber at the manufacturer's plant often in unsatisfactory condition. It has recently been found that chalking the inner surface of the cases has given favorable results and is most promising as a future method.

Plantation Shares Closely Held

Although the actual volume of business passing in rubber plantation shares is moderate, says the latest bulletin of Zorn & Leigh-Hunt, London brokers, the strength of prices is well maintained, and the same feature continues to characterise the market that has been in evidence for the past six months or more, namely, the absence of supply of the good-class shares. In surprisingly few cases is there any reasonable amount of stock to be obtained. Jobbers hesitate to sell unless they know where to put their hands on the stock for which there is an insistent demand. Shares of the best-class companies are much easier to sell than they are to buy, and, although the prices of the leading issues change comparatively little from Monday to Friday, the under-current as represented by the strength shown through the medium of the sound shares, is strong to the point of exasperation for the many people who want to pick up parcels of shares in view of the next dividend season. The price of rubber itself is showing little variation from day to day. With the lower-priced florin shares, of which there is usually a fair amount to supply the buyers, the position is a little different, though, in their case also, the market manifests a hard tendency.

Rubber Prices Change Little in Fortnight

Slackened Production in Tire Plants Allows Manufacturers To Withhold Orders; Market for Reclaimed Rubber Spotty

CRUDE RUBBER

NEW YORK, Sept. 17, 1926—With little support from manufacturers the crude rubber market managed to maintain its prices fairly well in a period of quiet trading preceding Labor Day. Values showed little change with a small turnover. December sold down 40 points to 40.20 but regained to 40.80. There was considerable shading in off grades with supplies of ambers and crepes easy.

With the resumption of trading after the holiday only sixty tons of crude were traded in on the Rubber Exchange. Manufacturers continued to exhibit little interest and but little outside buying was reported. What activity there was was practically confined to inside trading with prices firm.

Stocks in London on the 7th were 30,764 tons, an increase of 605 tons during the week.

The small volume of buying by manufacturers early in the month was attributed to ample stocks in consumers hands. The concensus of opinion that conditions were not favorable to taking on large stocks continued to be reflected in the prevailing hand-to-mouth buying. Dealer sentiment indicated confidence in the future and in view of the steadiness of the market, there was little disposition to sell short.

London opinion on the 10th that the market was on the brink of a decline was not shared here. Only slight declines were looked for and keen traders were of the opinion that manufacturers and dealers would take quick advantages of any declines that might occur.

It is interesting to note that last year at this time the local market witnessed a big buying movement which extended to distant as well as nearby futures. This year the market has reversed itself, the buying being largely confined to present needs. As a result, future factory requirements have been rather less than anticipated. The extensive use of reclaimed rubber and unfavorable weather are regarded as the chief factors for this condition.

Prices on ribbed sheets were very quiet on the 11th with no large buying. The big buyers showed little interest and tire makers continued to hold off.

A little more strength appeared in the market on the 13th and trading was heavier than for the previous week but the volume of sales was relatively small. Price fluctuations were confined to a narrow range with dealers looking forward to the big manufacturers being forced to enter the market.

Trading on the 14th showed more activity than for the fortnight past and 103 lots were sold on the Exchange which was equivalent to the total of the preceding week. Prices remained steady and a 20 point loss in September was recorded.

In a fairly active market on the 15th, 106 lots changed hands. The sale of a lot of 100 tons of September standard sheets was reported at 40 cents but smaller lots sold around 40¼ cents.

The rubber futures market was quiet again on the 16th.

SEPT. 16 OPEN MARKET PRICES

Plantations—			
Ribbed Smoked Sheets			
Spot	.40¾	@	—
Sept	.40¼	@	—
October	.40½	@	—
Oct./Dec.	.40¾	@	—
Jan./Mar.	.41½	@	—
First Latex, crepe spot	.41	@	—
Amber Crepe, No. 2, spot	.38	@	—
" " No. 3	.37½	@	—
" " No. 4	.37	@	—
Brown Crepe, Rolled	.38	@	—
" " Clean, thin	.37½	@	—
" " Specky	.36½	@	—
Pontianac—			
Bangermassin	Nominal		
Palembang	Nominal		
Prime Pressed	Nominal		
Sarawak	Nominal		
Paras—			
Up-river Fine	.38	@	—
" Medium	.36	@	—
" Coarse	.25¾	@	—
Acre Bolivian, fine	.39½	@	—
Tapajos, fine	.33½	@	—
Islands, fine	.33	@	.33½
Cut Beni Bolivian, fine	.40	@	—
Caucho Ball—			
Upper, shipment	.26	@	—
Centrals—			
Corinto, scrap	.21	@	—
Esmeraldo, sausage	.21	@	—
Guayule, w and d	.32	@	—
Africans—			
Benguela, No. 2	Nominal		
Congo, upper, black	Nominal		
" " red	Nominal		
Kassai, Prime Red	Nominal		
Balata—			
Block, Columbia	.60	@	—
" Cuidad	.58	@	—
Surinam, sheet	.73	@	—
Gutta Percha—			
Siak	.32	@	.33
Red Macassar	3.00	@	3.50
Chicle—			
Mexican, Yucatan	.65	@	—

LONDON MARKET

Standard Ribbed Smoked Sheets—*Buyers*	
Spot	19¾d
September	19¾
Oct.	19⅞
Oct./Dec.	20⅛
Jan./March	20⅝

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—*Sellers*	
Sept.	19⅛d
October	19⅜
Jan./Mar.	19½

RECLAIMED RUBBER

NEW YORK, Sept. 17, 1926—Reclaimers report a slight let-down from the demands of last month. On a whole the market is spotty with some manufacturers increasing their needs while others are lowering their demands. Quotations are slightly easier, as follows:

High Tensile Black			
Super-Reclaim No. 1	.lb. .18½	@	.19
" " No. 2	.lb. .16	@	.17
Shoe			
Unwashed	.lb. .08¾	@	.09
Washed	.lb. .11¾	@	.12¼
Tube			
No. 1 (Floating)	.lb. .18	@	.21
No. 2 (Compounded)	.lb. .16	@	.17
Tires			
Black, unwashed	.lb. .09¼	@	.10
Black, washed	.lb. .11	@	.11¼
Black selected tires	.lb. .10½	@	.11
Dark Gray	.lb. .12	@	.14
Light Gray	.lb. .15	@	.16
White	.lb. .17	@	.17½
Truck, Heavy Gravity	.lb. .09	@	.09½
" Light Gravity	.lb. .09¾	@	.10¼
Miscellaneous			
Mechanical Blends	.lb. .08	@	.09
Red, High Grade	.lb. .17½	@	.18½

SCRAP RUBBER

NEW YORK, Sept. 17, 1926—Demand for scrap has not continued as strong during the middle of the month as was evidenced late in August. Dealers are having no trouble getting stocks but they are content to keep their supplies low. Quotations are unchanged as follows:

[*Prices to Consumer*]

Auto tire peelings	ton 38.00	@	40.00
Standard White auto	ton 57.00	@	58.00
Mixed auto	ton 25.00	@	27.00
Bicycle tires	ton 22.00	@	24.00
Clean solid truck tires	ton 40.00	@	42.00
Boots and shoes	.02	@	.02⅛
Arctics, untrimmed	.00⅞	@	.01
Arctics, trimmed	.01	@	.01¼
Inner tubes, No. 1	.09¼	@	.09½
Inner tubes, No. 2, compounded	.07¼	@	.07½
Air Brake Hose	ton 28.00	@	32.00
Rubber hose	ton 23.00	@	25.00

Closing Prices on Rubber Exchange of New York, Inc.

SEPTEMBER 3 to 16

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sales*
Sept. 3	40.20	40.20	40.40	40.70	41.20	41.40	41.70	41.90	42.10	42.20	42.30	—	50
7	40.10	40.20	40.70	41.10	41.30	41.40	41.90	42.10	42.30	42.40	42.50	—	24
8	40.00	40.20	40.70	41.00	41.30	41.40	41.70	41.90	42.10	42.20	42.40	42.50	74
9	40.00	40.30	40.70	40.90	41.20	41.20	41.60	41.90	42.10	42.20	42.40	42.50	15
10	40.00	40.20	40.60	40.90	41.20	41.20	41.60	41.90	42.10	42.20	42.40	42.50	40
11	39.80	40.10	40.50	40.70	41.10	41.10	41.60	41.70	42.00	42.10	40.30	42.40	11
13	40.00	40.20	40.50	40.00	41.30	41.40	41.60	41.90	42.10	42.30	42.40	42.50	73
14	39.80	40.10	40.60	41.10	41.30	41.50	41.60	41.80	42.10	42.30	42.40	42.50	103
15	39.80	40.00	40.50	41.00	41.20	41.50	41.60	41.80	42.10	42.30	42.40	42.50	106
16	39.80	40.30	40.80	41.20	41.50	41.70	41.90	42.10	42.30	42.40	42.50	42.60	82

(*) In lots of 2½ tons each; totals are for old and new contracts. (Prices are for new contracts)

Cotton and Tire Fabrics

Tire Fabric Cost Put at $63,000,000

Automobile manufacture calls upon the cotton textile industry annually for more than 226,000,000 square yards of tire fabrics alone, according to latest figures compiled by the Association of Cotton Textile Merchants of New York. Approximately $63,000,000 is paid for this material.

The manufacture of 4,336,754 motor vehicles in 1925 called for the use of 108,950,000 square feet of imitation leather for tops and coverings, the Association stated. The base for this material is cotton. Cotton fabrics also contributed to the 30,285,000 yards of upholstery cloth to make passenger automobiles attractive and comfortable. Top and side curtains called for 20,810,000 yards of materials in which cotton textiles were an important component.

Cotton Spinners Busier in South

The cotton spinning industry of the southern states was busier during the first six months of 1926 while New England plants were less active, according to Department of Commerce reports. In the latter section of the country the aggregate number of active spindle hours was 4.14 per cent less than those of the first half of 1925 while in the cotton growing states the total was 2.44 per cent higher. As a whole, however, there was but little change in the industry. In 1926 plants operated at 96.5 per cent of their single shift capacity compared with 96.8 per cent last year.

Exports of cotton cloth, including duck and tire fabrics, fell off in the fiscal year ended June 30. The aggregate was 521,095,000 square yards which represented a decline of 5.7 per cent from the yardage exported in the previous fiscal year.

Cotton Production Estimated At 15,166,000 Bales

The condition of the American cotton crop on September 1 was declared by the Crop Reporting Board of the Department of Agriculture to stand at 59.6 per cent. This indicates a crop of 15,166,000 bales of 500 pounds gross weight. This figure was higher than had been anticipated in the cotton trade and led to an immediate decline in the market price for the commodity.

Other figures given out by the Crop Reporting Board indicated that the cotton area for harvest would aggregate 47,207,000 acres. The probable abandonment of acreage for the season after June 25, based on reports to September 1, was estimated at 1,691,000 acres, or 3.5 per cent of the total.

Ginnings to September 1 totalled 694,877 bales, compared with 1,886,399 bales for the period from August 1 to September 1 last year, and 947,494 bales for the same period in 1924. All sections of the cotton belt reported that the crop was fruiting later than usual.

"On account of the lateness of the season", the Crop Reporting Board stated, "insect injuries and weather unfavorable for fruiting, the number of bolls per plant reported by crop correspondents on September 1 was less than the number reported safe on that date last year in all important states except Texas and Oklahoma; in those states the number is running about the same as last year."

World Uses More Cotton In 1926

Data compiled by the International Federation of Master Cotton Spinners and Manufacturers Associations, Manchester, England, shows that the world's mill consumption of cotton of all growths reached the very high figure of 24,681,000 running bales for the year ended July 31, 1926. This was about 1,390,000 bales more than was consumed in the previous season. Mill stocks on July 31, 1926 were 4,498,000 bales or about 2,000,000 bales greater than on July 31, 1925.

World consumption of American cotton was 13,730,000 bales for the year under review compared with 13,256,000 in the previous year. Consumption of Egyptian and Indian growths in 1925-26 did not differ greatly from the previous season, but "sundries" showed a considerable increase, being 4,458,000 bales in 1925-26 as compared with 3,547,000 bales in 1924-25.

Tire Fabric Competition Keen

Partly due to the increased manufacture of fabric by the tire companies themselves, competition has been very keen for tire fabric business among mills uncontrolled by rubber companies.

Some southern plants, though running on a very low cost basis, are said to be seeking business at prices which preclude anything like a fair profit. Instances are cited in which mills have secured orders for half a million pounds and then have advanced goods 2c or more a pound, bringing the new price up to the general parity of quotations made by competitors who sought the business at very close figures.

Strike Ended at Tire Fabric Mill

After an unusually bitter strike featured by clashes between strikers and employees as well as attempts to fire the buildings, the Manville Jenckes Company, Manville, R. I., manufacturers of cotton textiles, including tire fabrics, is operating its mills again. The strike was called on August 19 when most of the 1,700 operators walked out in protest against the employment of non-union loom fixers and a reported plan to lengthen working hours. There were no disorders until the end of August when the production manager of the mill was severely beaten and an attempt made to set one of the buildings on fire. An agreement between the company and the strikers was reached after Rhode Island state officials had interested themselves in the strike.

Cotton Prices Weaker on Mixed Trading

Reports of Excellent Weather Coupled With Hedging and Liquidation Bring Cotton Prices New Low Record of July

NEW YORK, Sept. 17, 1926—During the past few weeks continued hedging, speculative liquidation and fine weather conditions combined to bring down the price for October position from 17.72 on Sept. 2 to 16.22 to-day. Towards the end of this period, however, there was a slight recovery on reports of rains throughout the cotton belt.

As usual, the Government report, issued on Wednesday, Sept. 8 furnished the industry with a surprise. Despite a number of private estimates on the cotton crop production which averaged about 14,750,000 bales, the Government figures of 15,166,000 bales were somewhat above this figure. This of course was much more favorable than had generally been expected with the result that prices dropped 45 to 55 points shortly after its release.

The lateness of the crop with weevils and other insects active, and the fact that it is exposed to being seriously cut down by an early frost, render it extremely doubtful that the ultimate yield will prove as large as the Government's forecast would seem to promise.

With a certainty that the crop will be materially smaller than last year, even if the Government's figures are realized, and with every reason to expect that consumption this season will be greater than last, as both exports and mill takings are running ahead of last year, there would seem to be no justification for a further decline when it is considered that prices are now fully 6 cents below what they were a year ago, or $30 a bale.

The following day prices eased off on hedge sales with declines of 25 points recorded. On the 10th. reports of better weather in the Southwest caused a further decline and this was followed by still lower prices resulting from liquidation and hedging on the next day. On the 13th. fine weather reports from the cotton belt caused further weakening. For the next few days, the declines continued, and prices came within 40 points of the low of July when December sold at 16.40. Yesterday and today, however, the market showed some firmness on mixed trading and reports of better weather, with the result that prices showed a slight upturn. Quotations are given in the adjacent column.

Current COTTON and FABRIC *Quotations*

COTTON CLOSING PRICES

	Open	High	Low	Close Sept. 17	Close Sept. 2
Oct.	16.28	16.40	16.20	16.22@16.25	17.72
Dec.	16.50	16.58	16.37	16.40@16.44	17.79
Jan.	16.10	16.70	16.41	16.51@16.55	17.88
March	16.81	16.92	16.70	16.71@16.73	18.08
May	17.00	17.13	16.92	16.92	18.25
Spot	17.05				

TIRE FABRICS

CORD			
Peeler, carded, 23/5/3	lb.	.42 @	.44
Peeler, carded, 23/4/3	lb.	.43 @	—
Peeler, carded, 15/3/3	lb.	.39½ @	.40
Peeler, carded, 13/3/3	lb.	.38 @	39
Egyptian, carded, 23/5/3	lb.	.50 @	.51
Egyptian combed, 23/5/3	lb.	.56 @	.57
SQUARE WOVEN			
Carded American, 17¼ oz. 23-11 ply	lb.	.41 @	.43
Carded American, 17½ oz. 10-5 ply	lb.	.38 @	.40
LENO BREAKER			
Carded American, 8 oz.	lb.	.42 @	.45
Carded American, 10 oz.	lb.	.42 @	.45
CHAFERS			
Carded American, 8¼ oz.	lb.	.42 @	—
Carded American, 9½ oz.	lb.	.42 @	.43
Carded American, 12 oz.	lb.	.42 @	.43
Carded American, 14 oz.	lb.	.41 @	.42

SHEETINGS

40-inch 2.50-yard	yd.	.12¾ @	.13
40-inch 2.85-yard	yd.	.11 @	.11¼
40-inch 3.15-yard	yd.	.12¼ @	.12½
40-inch 3.60-yard	yd.	.10 @	.10¼
40-inch 3.75-yard	yd.	.09¼ @	.09½
40-inch 4.25-yard	yd.	.08¼ @	.08⅝

DUCKS

Belting and Hose	lb.	.31 @	.32
Enameling	lb.	.34 @	.37
Shoe Ducks	lb	.37 @	.38
Single filling	lb	.14 @	.16½
Double filling	lb.	.17 @	.18

Tire Fabrics

The prediction made in our last report that an increased volume of tire fabric business would be placed shortly was somewhat vindicated by the larger number of orders placed for both spot and nearby positions during the past fortnight. Not only has there been interest in these positions but sizeable orders have also been reported to be placed for 1927.

A number of fair sized orders were placed during the first week in September showing a continued interest on the part of tire factories in fabrics at present prices. Last week a large number of orders for spot business were placed and some factors were hard pressed to handle the sudden rush of business.

Mills have continued high production schedules in anticipation of greater demands for fall and spring delivery and orders already placed show that this step was not unwarranted. Early this week orders continued in good force for both spot and nearby positions and fabric mills are said to be experieneing their best business of the year. The increased demand for spot deliveries in the past two weeks has caused uneasiness in some quarters and premiums are expected to be the rule shortly if orders continue for any length of time at the same rate. Prices have varied but little since our last report. Quotations are given in adjacent column.

Ducks

The cautious buying policy of rubber plants, which has been evident for some time past, has continued during this month with the result that only a very few orders of any size were reported on ducks. At the beginning of the month belting and hose duck was quoted at 32c. but offers half a cent under this price were not refused. Drills were fairly active for spot delivery but on the whole buying has been cautious for other lines of ducks.

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Rubber Chemistry and Chemicals

The Use of Furfural in Rubber Manufacture

New Low Price Level Reached by Furfural Increases Interest in Use of Its Derivatives as Accelerators

By Carl S. Miner,

The Miner Laboratories, Chicago.

THREE YEARS ago furfural was merely a laboratory curiosity and available only in small quantities and at high prices that rendered its use in industrial processes impractical. Today its characteristics are well-known to practically all chemists and it is available in car lots at prices that make it one of the cheapest aldehydes.

Investigations which have been made in connection with furfural during the last three years have extended to the rubber industry. Accordingly, the use of furfural derivatives as vulcanization accelerators and in other directions has become recognized. Before discussing such uses it will perhaps be best to review briefly the history and preparation of the material.

Furfural was first obtained by Dobereiner (1) in 1830 while preparing formic acid by the action of sulphuric acid and manganese dioxide on sugar. During the distillation he noticed that the distillate came over milky and on standing a yellow "oil" separated out. He succeeded in obtaining only a small amount, not enough to make any extensive investigation of its nature. The "oil" was described as having an odor similar to a mixture of oil of bitter almonds and oil of cinnamon and was given the name "artificial oil of ants". A short time later Emmet (2) noticed that an "oil" was obtained when formic acid was prepared from rye or corn by treating with sulphuric acid.

The First Production of Furfural

Stenhouse (3) in 1840 was the first to prepare any quantity of this "oil". He used Emmet's process for the preparation of formic acid, using oatmeal and sawdust as the material from which to make the "oil". He succeeded in obtaining a yield of an ounce from twelve pounds of meal. The composition of the "oil" was determined and formula of $C_5H_4O_2$ given to the compound. This formula has been shown by subsequent investigation to be correct. The effect of treating it with acids and alkalies was studied, and its boiling point, specific gravity and solubilities in water and alcohol determined. Comparison of these constants with those determined more recently indicate that Stenhouse was working with a very impure product.

Fownes (4) in 1845 was the next to work on an "oil" obtained by distillation of bran with sulphuric acid. He found this to be identical with the "oil" studied by Stenhouse and suggested the name furfurol (furfur-bran, oleum-oil). Ultimately, when the aldehyde nature of the compound was established, it became known as furfur-aldehyde, which is now ordinarily abbreviated to furfural.

That pentoses and pentosans on distillation with dilute hydrochloric acid yield furfural was established by Tollens (5). The pentosans, being present in nearly all naturally occurring cellulosic materials such as the different varieties of woods, cereal straws, wheat bran, grain hulls, corn cobs, etc., are produced in such large quantities and are a by-product from the annual cereal crops, and the theoretical yield from some of these is in the vicinity of 20% of furfural, we may expect these materials to form a large as well as cheap source of furfural for many years to come.

Methods of Manufacture

Until the last few years, furfural has not been manufactured in commercial quantities in this country. Although various methods for producing it have been proposed the usual procedure has been to cover bran or other pentosan bearing material with a large excess of dilute hydrochloric or sulphuric acid and distill. By this procedure the furfural was obtained in the distillate, admixed with a relatively large amount of water and was recovered either by extraction with a suitable solvent or by concentrating in a column still. During the last few years, La Forge and Mains (6) at the Bureau of Chemistry have developed a satisfactory method for making furfural from corn cobs. Mains has applied the rectification equations of Lewis to furfural water solutions and designed a continuous column still for recovering the furfural from its water solution.

Investigations at the Miner Laboratories (7) have led us to select oat hulls as the most readily available raw material for the manufacture of furfural since they are produced continuously throughout the year in large quantities (as much as 200 tons per day at a single plant), by factories centrally located and in a form convenient for treatment. We have developed a simple and effective procedure in which the hulls are subjected to the action of steam and acid in large rotary digesters. The distillate from these digesters, which has a relatively high furfural content, is neutralized with lime and the furfural recovered by column still. The liquor obtained from the still is about 95% furfural and 5% water and this product is refined to between 98% and 99% by heating to a temperature of 160°C. in a special type of drier. This product constitutes our technical grade of furfural on the market at the present time.

Some important furfural derivatives are furan, furoic acid, furfuryl alcohol, furoin, furil, hydrofuramid and furfurin. The last two have been found of greatest use in the rubber industry.

Solvent Action of Furfural

Furfural possesses an extremely wide range of solvent activity. This property is common to many of the furfural derivatives and has led to a rather extensive study especially in the cellulose-ester industry. Furfural is a solvent for nearly all the known cellulose esters and ethers and several patents have been granted covering the application of furfural or its derivatives in the preparation of lacquers, aeroplane dopes, etc. It has also been specially recommended by

(1) Ann., *3*, 141 (1832).
(2) J. Prakt. Chem., *12*, 120 (1837).
(3) Ann., *35*, 301, (1840); Phil. Mag. (3), *8*, 122 (1840).
(4) Ann., *54*, 52, (1845); Phil. Ma., *26*, 254 (1845).
(5) Ann., *249*, 227 (1888).
(6) Ind. Eng. Chem., *15*, 1057 (1923); C.A., *17*, 3823 (1923).
(7) Chem. & Met., *27*, 299 (1922).

Gardner (8) for use in lacquers and is now being used in the preparation of commercial lacquers.

The largest commercial application of furfural so far developed has been in the manufacture of moulding resins and compounds. Early in the course of the research work done on furfural, it was discovered that resinous masses were produced when it was treated with various compounds, especially amines and phenols.

Application of Furfural in Rubber Manufacture

Among the derivatives of furfural are a number that have a marked accelerating action on the vulcanization of rubber. The range of activity is wide, varying from the ultra-accelerator type to the type for which relatively high temperatures are necessary for the accelerating action to be manifested.

Hydrofuramide, which has been sold in France under the trade name of Vulcazol, is perhaps the best known of the accelerators derived from furfural. Dubosc (9) and Ricard (10) report a good cure in 10 to 20 minutes at 135°C. using 0.5 to 1.0 per cent of hydrofuramide in a high zinc batch with 4 to 5 per cent sulfur, obtaining under these conditions a tensile of 3000 to 3500 pounds per square inch. Twiss (11) obtained maximum tensile of 2000 to 2200 pounds per square inch using a low zinc (1 to 5 per cent), 10 per cent sulfur, and 1 per cent hydrofuramide in 45 minutes at 138°C.

Furfurin has accelerating action very similar to that of hydrofuramide.

A number of accelerators occur among the sulfur derivatives. A patent has recently been issued to Cadwell (12) on the use of thiofurfural as an accelerator. Bruni (13) and Romani (14) report the ultra-accelerating action of dithiofuroic acid, but give no numerical data.

In addition to these covering the accelerating action of furfural derivatives, patents have been granted to Trumbull and Winkelmann (15) on the use of resinous reaction products of the guanidines with furfural as age resistors, and to Winkelmann and Gray (16) on the use of condensation products of furfural with *a*-napthylamine and *o*-toluidine for the same purpose. Winkelmann (17) has also been granted a patent on the use of furfural *o*-toluidine in the production of renewed rubber.

Trickey and Leuck (18) investigated the possibilities of furfural derivatives as accelerators.

They compared the accelerating action of hydrofuramide and furfurin with that of hexa- and diphenyl-guanidine. Their results indicate that hydrofuramide and furfurin are roughly one-third to one-half as effective as hexa- and diphenyl-guanidine. The overcure effect, however, is much less with hydrofuramide than with either of the others. The effect on the color of the cured rubber is practically the same when the pieces are first cured, but on aging a color is developed when hydrofuramide is used which would limit its use to dark stocks.

Testing Furfural Accelerators

A number of other furfural derivatives have been tested for accelerating action. Because of the ease with which furfural condenses with other compounds to form resinous bodies, a substantial number of the compounds studied were of this type. Among these may be mentioned the condensation products with aniline, diphenylaniline, and dimethylaniline. In general, in this limited experimentation, the products formed with aromatic compounds have a relatively small accelerating action while those with aliphatic compounds have considerably more.

A number of the thio aldehydes having the empirical formula $(C_4H_3O.CHS)_x$ have been reported in the literature. Only two have been prepared in the pure state, both of which had the formula $(C_4H_3O.CHS)_3$, but differed markedly in their properties. Others of resinous nature have been made with formulas of $(C_4H_3O.CHS)_{n-\infty}$ and tested by these workers.

The greater part of their experimental work was directed primarily to the study of the thio derivatives of furfural, especially dithio furoic acid and its lead and zinc salts. Their results show these compounds to be of ultra-accelerator type giving cures comparable with those obtained by the use of tuads. Of the three compounds the zinc dithio furoate is the most active followed by the free acid and then the lead salts. The over-cure of the free acid is extremely slight, the tensile strength in a 100 rubber, 10 zinc oxide, 5 sulphur and 1 accelerator batch when cured at 5 lbs. steam pressure reaches 4500 lbs. in 20-30 minutes and drops to 4200 in 120 minutes of cure. The over-cure with the zinc and lead salts is somewhat greater.

Certain of these accelerators such as hydrofuramide and dithiofuroic acid and its salts can be produced even in a comparatively small way at prices that make them competitive with some of the commonly used accelerators and there is no doubt that if, as is anticipated, a considerable demand for them develops they can be manufactured on a large scale to sell for much lower prices.

Since furfural has only recently reached its present low price level which makes it a relatively cheap raw material for organic syntheses, it is to be expected that the immediate future will see much more active and widespread research looking toward the production from furfural of compounds useful in the rubber industry. The work already reported in the literature is sufficient to indicate that the unexplored possibilities are vastly greater than the present results and much of importance to the rubber industry may be expected from further research with this interesting new commercial chemical and its derivatives.

(8) Circular of Paint Mfgrs. Assoc. of America, No. 209, 67 (1924).
(9) Caoutchouc and Gutta Percha, *17*, 10495 (1920).
(10) U. S. Pat. No. 1,440,176 (1922).
(11) Jour. Soc. Chem. Ind., *40*, 242T (1921).
(12) U. S. Patents Nos. 1,564,824 and 1,564,825 (1925).
(13) India Rubber Jour., *64*, 937 (1922).
(14) Caoutchouc and Gutta Percha, *19*, 11626 (1922).
(15) U. S. Pat. No. 1,496,792 (1924).
(16) U. S. Pat. No. 1,515,642 (1924).
(17) U. S. Pat. No. 1,532,218 (1924).
(18) Jour. Indust. & Engineer. Chem., *18*, 812 (1926).

Voltol Rubber Substitute

In recent years the voltol oils have attained some importance, writes the German correspondent of *Industrial and Engineering Chemistry*. As is well known they are obtained by converting mobile oils, such as fish or rape oil, or even mineral oils added to them, into oils of very high viscosity, by the action of high-tension alternating current glow discharges. Like castor oil, voltol oils undergo only a slight decrease in viscosity even at high temperatures. While working with the so-called voltol tubes for the production of voltol oils, Dr. L. Hock observed the precipitation of a viscous white substance, called "voltol fish," which was similar to white factice (rubber substitute). These "voltol fish" were also noted in the technical production of voltol oil at the oil works of the Stern-Sonneborn Akt.-Ges. of Hamburg. The voltol factice is distinguished from ordinary factice primarily by its freedom from sulfur. Experiments are to be continued with a view to obtaining a product utilizable in rubber technology, for which purpose merely the incorporation of sulfur in the voltol factice might suffice. Experiments so far have not given satisfactory results.

Effect of Soda on Latex

***Comm. Central Rubber Stat. Buitenzorg*, 1925, 46, Pages 28-67**

The addition of a large proportion of caustic soda to latex causes a paste to form on the surface. In this paste most of the globules are unchanged and retain their Brownian movement, but a few flocks are also present. The rubber obtained from the paste is unusually soft and plastic, but has a marked tendency to develop tackiness, and also shows a low tensile strength after vulcanization. The aging qualities of the rubber are improved if the paste is dialyzed for a week. It is probable that tackiness is the effect of a decomposition product resulting from the action of more than one half of one per cent of caustic alkali, when this action is prolonged for long periods. Latex, which has been preserved with caustic alkali for a long period, yields rubber with a reduced nitrogen content and an increased ash yield. Rubber coagulated from latex which has been preserved with caustic alkali for any period, however, shows a fairly uniform high rate of vulcanization.

Rubber Chemicals Continue Active

September Movement of Rubber Chemicals Is Exceeding Last Month by Wide Margin—Natural Gas Consumption Reduced

NEW YORK, Sept. 17, 1926—Despite the fact that a number of the larger tire plants in the Akron district are reported to be operated about 15% under August schedules, producers of chemicals and compounding materials report a very satisfactory movement of supplies during September. In fact, several lines are reported as being more active than last month. Prices in general have shown no changes and at this writing there is no evidence of any increases or decreases. Another cut in natural gas consumption goes into effect on Oct. 1 in Louisiana as a result of an order just signed by the commissioner of conservation. Whether or not this cut, amounting to 31,000,000 cubic feet per day, will affect the prices of carbon black is not known at this time but carbon black manufacturers are watching this new development very closely. Quotations follow:

ACCELERATORS

Organic

A-7	lb.	.70 @	—
A-40	lb.	.70 @	—
A-19	lb.	.75 @	—
A-11	lb.	.75 @	—
Aledhyde ammonia, crystals	lb.	.82 @	—
Aniline oil, drums	lb.	.17 @	.17½
"BB"	lb.	1.05 @	1.07
Captax	lb.	1.20 @	1.50
Crylene	lb.	.70 @	—
paste	lb.	.50 @	—
Di-Ortho-Tolylguanidine	lb.	1.08 @	—
Diphenylguanidine	lb.	.85 @	.88
Ethylidene aniline	lb.	.60 @	.65
Excellerex	lb.	.35 @	.40
Formaldehyde-Aniline	lb.	.40 @	.42
Grasselerator 102	lb.	.80 @	.82
Grasselerator 552	lb.	4.80 @	5.00
Grasselerator 808	lb.	1.25 @	1.50
Heptene	lb.	.55 @	—
Hexamethylene-tetramine	lb.	.80 @	.82½
Monex	lb.	3.25 @	—
Paraphenylenediamine	lb.	1.25 @	1.30
Piperidine-Piperidyldithio-Carbamate	lb.	4.80 @	5.00
R & H 50	lb.	— @	.65
Super-Sulphur No. 1	lb.	.50 @	—
Super-Sulphur No. 2	lb.	.18 @	.25
Tensilac, No. 41	lb.	.65 @	—
Thiocarbanilide, kegs	lb.	.28½ @	—
Trimene	lb.	.75 @	—
base	lb.	1.20 @	1.35
Triphenylguanidine	lb.	.70 @	.73
Tuads	lb.	3.25 @	3.50
Vulcone	lb.	.75 @	.79
Z. 88	lb.	.75 @	1.00
Zimate	lb.	4.00 @	—

Inorganic

Lead, sublimed blue	lb	.10 @	.10½
Lead, white	lb.	.10¾ @	—
Litharge, domestic	lb.	.12 @	—
Magnesia, calcined, light	lb.	.06½ @	—
heavy	lb.	.04½ @	—

COLORS

Blacks (See Compounding Materials)

Blues

Prussian	lb.	.32 @	.35
Ultramarine	lb.	.08 @	.35

Browns

Siena, Italian	lb.	.04 @	.08
Umber, Turkey	lb.	.04 @	.06

Greens

Chrome, light	lb.	.28 @	.31
medium	lb.	.29 @	.32
dark	lb.	.31 @	.33
Chromium Oxide, bbl.	lb.	.31 @	.35

Reds

Antimony crimson, 15/17	lb.	.27 @	—
sulphur free	lb.	.48 @	.50
vermillion 15/17	lb.	.37½ @	—
golden 15/17 F.S.	lb.	.16 @	.22
Indian English	lb.	.11 @	.13
Oximony	lb.	.13¼ @	—
Para toner	lb.	.80 @	.90
Red oxide, reduced	lb.	.11 @	—
pure	lb.	.12 @	.14
Blue Ridge	lb.	.12 @	.14
Toluidine toner	lb.	1.80 @	2.10
Venetian red	lb.	.01½ @	.05
Vermillion, quicksilver, English	lb.	1.45 @	1.50

Whites

Albalith	lb.	.05¾ @	.06¼
Lithopone, Akcolith	lb.	.05¾ @	.06
Lithopone, Azolith	lb.	.05¾ @	.06¼
Zinc Oxide—American Process XX red	lb.	.07½ @	.07¾
Kadox, black label, kegs	lb.	.10⅞ @	.11⅛
blue " " "		.09⅞ @	.10⅛
red " " "		.08⅞ @	.09⅛
American Azo: ZZZ (lead free)	lb.	.07¼ @	.07¾
ZZ (under 5% leaded)	lb.	.06⅞ @	.07⅜
Zinc Oxide—French Process White seal	lb.	.12⅜ @	—
Green seal	lb.	.11⅞ @	—
Red seal	lb.	.10⅜ @	—

Yellows

Chrome	lb.	.17½ @	.18
Ocher, French medium	lb.	.02¼ @	.03
domestic	lb.	.01¾ @	.02½

COMPOUNDING MATERIALS

Aluminum Flake (f.o.b. plant)	ton	21.85 @	24.50
hydrate light	lb.	.16 @	.17
Ammonia carbonate	lb.	.13½ @	.16½
Are-O-Sel	ton	8.00 @	11.00
Asbestine	ton	16.00 @	18.50
Barium carbonate	lb.	.03½ @	—
Barium Dust	lb.	.05 @	.06
Barytes southern off-color,	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	36.00
Basofor	lb.	.04½ @	—
Blacks Arrow "Aerfloted"	lb.	.09 @	.13
Bone Black	lb.	.05½ @	.11
Carbon, compressed	lb.	.08½ @	.12½
" uncompressed	lb.	.08 @	.12
Drop Black	lb.	.07½ @	.14
Lamp "	lb.	.12 @	.40
Micronex	lb.	.09 @	.13
Thermatomic carbon	lb.	.05 @	—
Blanc fixe dry f.o.b. works	lb.	.04 @	.04½
Carrara filler	lb.	.01¾ @	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk	lb.	.02½ @	.04½
Clay, China, domestic	ton	15.00 @	25.00
Aerfloted Suprex	ton	11.00 @	20.00
Blue Ridge, Dark	ton	9.00 @	—
" " Light	ton	12.00 @	—
Dixie	ton	20.00 @	35.00
Langford	ton	12.00 @	22.00
Mineral Flour, c. l. fob mine	ton	17.00 @	20.00
Seminole, c. l. fob mine	ton	16.00 @	—
Glues, extra white	lb.	.20 @	.29
medium white	lb.	.18 @	.24
common bone	lb.	.12 @	.14
Graphite flake, bbls.	lb.	.06½ @	.12
Magnesia, carbonate	lb.	.08 @	.08¾
Mica, powdered	ton	90.00 @	100.
Rotten Stone (powdered)	lb.	.02½ @	.04½
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	3.30 @	3.70
Talc, domestic	ton	16.00 @	20.00
Terra Alba	cwt.	1.25 @	2.00
Tripoli, white	lb.	.02 @	.02¼
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.50 @	—
Quaker	ton	13.00 @	15.00
Superfine	ton	10.00 @	12.00
Sussex	ton	8.00 @	10.00
Wood pulp XXX	ton	35.00 @	—
" " X	ton	25.00 @	—

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Granulated M.R.	ton	33.00 @	38.00
Hydrocarbon, Hard	ton	29.00 @	35.00
Hydrocarbon, Soft	ton	29.00 @	—
320/340 M.P. hydrocarbon (c. l. factory)	ton	47.00 @	52.00
300/310 M.P. hydrocarbon (c. l. factory)	ton	42.00 @	47.00
Paradura	ton	70.00 @	72.50
Robertson, MR, solid	ton	35.00 @	75.00
M.R. (gran)	ton	42.00 @	80.00

SOFTENERS

Acids

Muriatic, 20%	cwt.	.95 @	1.05
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulphuric, 60 degrees	ton	10.50 @	11.50
66 degrees	ton	15..00 @	16.00
Tartaric, crystals	lb.	.29 @	—

Alkalies

Caustic soda, 76%	cwt.	3.76 @	3.91
Soda ash, 58% C.L.	cwt.	1.43 @	1.45⅛

Oils

Castor, No. 3 bbls.	lb.	.12¼ @	—
Corn, crude, bbls.	lb.	.11¼ @	—
refined	lb.	.13 @	—
Cottonseed, crude		.10½ @	—
Cycline	gal.	.26 @	.34
Glycerine, C.P. drums	lb.	.23½ @	.24
Linseed, RawC.L. bbl.	lb.	.11 @	—
Liquid Rubber	lb.	.12 @	—
Moldrite	lb.	.05 @	.06
Palm, Lagos	lb.	.08½ @	.08¾
Niger	lb.	.08⅛ @	.08¼
Peanut, domestic crude	lb.	.12½ @	—
Petrolatum, white	lb.	.11⅛ @	.11⅜
amber	lb.	.03⅞ @	.04
dark amber	lb.	.03⅞ @	.03¾
Pine, steam distilled	lb.	.60 @	.65
Rapeseed, refined	gal.	.84 @	.90
blown	gal.	1.00 @	—
Rosin, first rectified	gal.	.60 @	.62
second rectified	gal.	.65 @	.67
Soya Bean, crude		.13¼ @	.13½
Synthecite	lb.	.06 @	—
Tar, commercial	gal.	.30 @	.32

Resins and Pitches

Pitch, Burgundy	lb.	.06½ @	.07½
coal tar	gal.	.05½ @	.06
pine	bbl.	7.50 @	8.50
Rosin, grade K	bbl.	11.25 @	—
Tar Retort	bbl.	16.00 @	17.00
kiln burned	bbl.	15.00 @	16.00
Tackol	lb.	.09 @	.15

Solvents

Acetone, pure	lb.	.14½ @	—
Alcohol denatured, No. 1 bbls.	gal.	.34 @	.47
Benzol, 90%	gal.	.30 @	—
pure		.50 @	—
Carbon bisulphide	lb.	.05½ @	.06¼
tetrachloride	lb	.07 @	—
Motor gasoline, steel bbls.	gal.	.22 @	—
Naptha, V. M. & P.	gal.	.20 @	.21
Turpentine, spirits	gal.	.86 @	.87
wood	gal.	.80 @	.84

Waxes

Beeswax	lb.	.60 @	.62
Carnauba, No. 1	lb.	.50 @	.51
Ceresin, white	lb.	.09 @	.10
Montan, crude	lb.	.06 @	.06⅛
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
ParaffineWhiteA.M.P.	lb.	.05⅛ @	.05¼
Yellow A.M.P.	lb.	.05¼ @	.05⅜
Sweet Wax	bbl.	.10 @	—

ANTI-OXIDANTS

Age-Rite	lb.	.85 @	.90
Antox	lb.	.88 @	—
VGB	lb.	.66 @	.70

SUBSTITUTES

Black	lb.	.08½ @	.14
White	lb.	.10 @	.17
Brown	lb.	.10 @	.15

VULCANIZING INGREDIENTS

Ethyl Chloride, Cyl.	lb.	.55 @	—
" " Drums	lb.	.45 @	—
Sulphur Chloride (drums)	lb.	.04 @	—
Sulphur flour Superfine, bags	cwt.	2.20 @	2.75
" bbls.	cwt.	2.35 @	3.10
100% pure, refined, bags	cwt.	2.60 @	3.15
bbls.	cwt.	2.85 @	3.40

The Market Place

WHERE TO OBTAIN

Machinery, fabrics, chemicals, compounding ingredients, crude and reclaimed rubber, consulting chemical and engineering services. **1.**

ACCELERATORS—X L O and Diphenyl Guanidine.

Dovan Chemical Corp.

30 Church St. New York

ACCELERATORS — Two new accelerators: Vulcone and Di-ortho-tolylguanidine.

E. I. du Pont de Nemours & Co., Inc.
Dyestuffs Dept. Sales Div.
Wilmington, Del.

ACCELERATORS
Grasselerator 102
Grasselerator 552
Grasselerator 808

Grasselli Chemical Co.
Rubber Service Dept.
347 Madison Ave., New York

ACCELERATORS— Every lot is tested before shipment and a written guarantee of quality furnished.

Roessler & Hasslacher Chem. Co.
709 Sixth Ave. N. Y. City

ACCELERATORS—A19, A7, Thiocarbanilid.

The RUBBER SERVICE Laboratories Co.
611 Peoples Savings & Trust Bldg.
Akron Ohio

ANTIMONY Pentasulphide, golden and crimson, very fine, pure.

Rare Metal Products Co.
Belleville, N. J.
Direct Factory Representation

The* BLUE LIST *of the Industry

Your Products Listed Here

reach buyers in rubber factories at a cost lower than is possible by any other method.

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CARBON BLACK—*Micronex* the world's standard gas black, universally known as the "King of Rubber Pigments."

Binney & Smith Co.
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CARBON BLACK

Godfrey L. Cabot, Inc.
Manufacturers for forty years.
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612 Metropolitan Bldg., Akron, O.

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CARBON BLACK or any other compounding material used by rubber manufacturers can be marketed at low cost by listing it in *The Market Place.*

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THE MARKET PLACE Section Continued on Second Page Following.

STATISTICAL SECTION

TIRES & TUBES
CRUDE RUBBER

AUTOMOBILES
GASOLINE

THE UNITED STATES tire and tube statistics on the second following page, to which the figures for July have just been added, show a welcome growth in the sales of both casings and tubes and a corresponding decrease in the inventories. The stocks of tubes and casings on hand are now down to the level of last February. Since that time manufacturers have been receiving high-priced rubber ordered several months in advance. Since this material had to be worked up at one time or another and nothing was to be gained from waiting, the manufacturers proceeded on production schedules of greater magnitude than they would have otherwise.

The average London price for ribbed smoked sheets, as shown on this page, stood at 19.56 pence on September 15. The current restriction quarter is thus half passed with the average price almost one and one-half pence below the demanded 21 pence. A re-application of restriction appears to be just around the corner.

Average Spot Closing Prices--Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1920

Year	Cents	Year	Cents	Years	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23		

Average Monthly Price per Pound since 1921

Months	1921 Cents	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents
Jan.	19.18	18.82	32.73	25.86	36.71	79.50
Feb.	17.96	16.12	35.14	25.29	36.01	62.25
Mar.	17.05	14.53	34.21	22.83	41.00	59.00
Apr.	16.73	15.99	32.48	22.51	43.64	51.25
May	15.82	15.25	27.39	19.89	58.47	47.75
June	12.49	15.11	26.88	18.81	77.26	42.50
July	14.01	14.67	26.10	22.16	103.16	41.03
Aug.	14.04	13.93	28.84	26.17	82.99	38.50
Sept.	14.53	14.44	28.95	27.56	88.88	
Oct.	16.02	19.78	26.93	31.13	98.01	
Nov.	18.06	23.88	27.14	34.33	104.80	
Dec.	20.47	27.42	26.60	37.88	98.51	
Average for Year	16.36	17.50	29.45	26.20	72 46	

London Closing Prices of Ribbed Smoked Sheet

(In pence per pound)

Fourth Restriction Year—Fourth Quarter

Day	Aug.	Sept.	Oct.	Day	Aug.	Sept.	Oct.
1	—	19¾		16	19½		
2	—	19½		17	19⅝		
3	18⅞	19¾		18	19⅝		
4	18½	19¾		19	20		
5	18⅞	—		20	19⅞		
6	19½	19¾		21	19⅞		
7	19½	19¾		22	—		
8	—	19⅞		23	19⅞		
9	19	19¾		24	19¾		
10	19¼	19⅝		25	19⅝		
11	19	19¾		26	19¾		
12	19⅜	—		27	19⅝		
13	19½	19⅝		28	19¾		
14	19½	19¾		29	—		
15	—	19¾		30	20		
				31	19⅞		

(The average price for the period for which daily prices are reported above is approximately 19.560 pence. The British Colonial Secretary has announced that only 80% of the standard production will be exportable from the restricted area during the next quarter if the price during the entire current quarter does not average at least 21 pence.)

Average Price in Previous Quarters

Quarter	1922-23	1923-24	1924-25	1925-26
Nov-Jan	14.285	14.175	17.9983	46.709
Feb-Apr	16.858	12.917	19.356	28.103
May-July	14.242	10.974	38.469	21.001
Aug-Oct	14.944	14.632	43.269	

U. S. Imports and Exports of Crude Rubber.

YEARS	Gross Imports: Long Tons	Gross Imports: Total Declared Value	Gross Imports: Average Declared Value per pound Cents	Re-exports: Long Tons	Re-exports: Total Declared Value	Re-exports: Average Declared Value per pound Cents	Net Imports: Long Tons
1900	22,026	$28,577,789	57.92	1,718	$2,839,668	73.77	20,308
1901	24,617	28,120,218	51.00	1,663	2,425,727	65.11	22,954
1902	22,702	25,158,591	49.47	1,457	1,877,698	57.52	21,245
1903	24,886	35,152,642	63.06	1,646	2,598,416	70.47	23,240
1904	27,629	43,784,297	70.75	1,540	2,749,234	79.70	26,089
1905	28,637	48,517,906	75.63	1,616	3,149,989	87.00	27,021
1906	30,316	53,391,137	78.62	1,676	3,153,775	84.02	28,640
1907	30,649	49,813,361	72.56	1,832	3,509,903	85.55	28,817
1908	34,058	44,696,526	58.59	1,655	2,466,428	66.52	32,403
1909	41,950	79,264,817	84.35	2,161	4,233,921	87.46	39,789
1910	40,241	98,007,295	108.73	2,749	8,134,064	132.07	37,494
1911	36,987	74,410,550	89.81	2,523	4,977,174	88.07	34,464
1912	52,705	99,567,071	84.34	2,456	4,692,262	85.31	50,249
1913	51,732	76,820,739	66.29	1,881	3,396,429	80.62	49,851
1914	63,868	70,472,704	49.26	2,618	3,244,346	55.32	61,250
1915	98,876	111,031,144	50.13	2,082	2,357,350	50.54	96,794
1916	120,576	159,745,475	59.15	4,098	5,330,100	58.07	116,478
1917	181,089	233,220,904	57.49	4,000	5,705,289	59.21	117,089
1918	145,518	146,378,313	44.91	2,746	3,133,622	50.95	142,772
1919	239,259	215,820,113	40.27	2,282	2,205,629	43.15	236,977
1920	252,922	242,795,775	42.86	4,160	2,846,898	30.55	248,762
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925:							
Jan.	32,898	22,406,756	30.41	1,162	963,593	37.02	31,736
Feb.	24,696	18,532,115	33.50	979	779,406	35.53	23,717
Mar.	33,072	25,146,691	38.94	1,345	1,105,119	36.69	31,727
Apr.	32,506	24,874,562	34.16	1,130	1,009,305	39.86	31,376
May	36,932	30,311,754	36.64	1,203	1,323,445	49.12	35,729
June	31,569	26,855,883	37.98	1,198	1,577,106	58.75	30,371
July	32,455	33,701,723	46.36	1,278	2,132,681	74.52	31,117
Aug.	33,412	39,834,348	53.22	1,131	1,623,258	64.08	32,281
Sept.	26,367	36,686,013	62.11	1,154	1,820,360	70.41	25,213
Oct.	34,651	50,027,338	64.45	1,132	1,989,291	78.43	33,519
Nov.	37,755	56,271,963	66.54	1,605	2,898,930	80.65	36,150
Dec.	40,329	65,055,868	72.02	1,510	2,625,259	77.61	38,819
	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926:							
Jan.	42,404	72,528,151	76.36	2,084	3,747,505	80.28	40,320
Feb.	32,865	58,733,370	79.78	1,430	2,280,168	71.17	31,435
Mar.	42,152	70,589,581	74.76	1,836	2,735,234	66.51	40,316
Apr.	34,544	48,742,539	62.99	1,128	1,605,093	63.58	33,416
May	29,756	36,896,080	55.35	1,052	1,558,987	66.17	28,704
June	24,900	34,498,561	61.85	1,105	1,371,217	55.41	23,795
July	35,820	33,061,470	41.20	1,554	1,743,854	50.09	34,266
Aug.							
Sept.							
Oct.							
Nov.							
Dec.							

ALL THE LEADERS

Are represented in this section. Purchasing agents can rely on the concerns listed as thoroughly reliable in every way.

The Market Place 2.

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—and likewise a small beginning in the matter of advertising space is the first step to a bigger business!

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Members Rubber Exchange of N. Y. and Rubber Exchange Clearing House
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44 Beaver St., New York
Weekly Market Review on Request

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H. Frank Jones
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CHEMICALS — Accelerators
Trimene Base, Heptene, Monex, Crylene, Lithex, Aniline Oil.
Clay—Mineral Flour, Seminole (Georgia).
Antioxidant—VGB, a proven product.
Labels—all-rubber two color brands.
Naugatuck Chemical Co.
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We Solicit Your Inquiries
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for all classes of mixing and cure. Complete rubber laboratory service for our customers.
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FLUXITE — Liquid and Solid — A rubber softener and aging compound of great efficiency.
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CLEVELAND, OHIO

THE MARKET PLACE Section Continued on Second Page Following.

United States Tire and Tube Statistics[1]

Production, Sales, and Inventories[2]

AUTOMOBILE CASINGS

	Production During Month					Sales During Month					Inventory at End of Month				
	1922	1923	1924	1925	1926	1922	1923	1924	1925	1926	1922	1923	1924	1925	1926
Jan.	2,740	4,170	4,294	4,740	4,721	2,194	4,114	3,785	4,013	2,974	5,566	6,261	6,411	7,949	9,947
Feb.	2,779	4,291	4,372	4,908	4,865	2,144	3,568	3,849	3,924	3,436	6,255	6,966	7,020	8,928	11,164
Mar.	3,528	5,154	4,570	5,276	5,456	2,847	4,570	3,988	4,657	4,561	6,911	7,561	7,684	9,510	12,004
Apr.	3,202	4,719	4,410	5,341	5,346	2,853	4,106	4,018	5,498	4,980	7,286	8,118	8,219	9,088	12,461
May	3,629	4,880	4,051	5,467	5,023	3,608	3,793	3,693	5,954	5,211	7,364	9,209	8,442	8,611	12,343
June	2,785	3,943	3,506	5,418	5,422	4,281	3,448	3,671	6,737	5,724	6,723	9,387	8,207	7,243	11,968
July	3,302	2,657	3,403	5,587	4,950	3,678	3,463	4,748	6,298	6,337	6,445	8,628	6,851	6,421	10,592
Aug.	3,874	3,141	4,313	5,607		4,153	3,803	5,010	4,760		6,173	8,078	5,969	7,261	
Sept.	3,340	2,706	4,708	5,007		3,407	3,563	4,539	4,569		6,149	7,197	6,033	7,681	
Oct.	3,566	3,148	5,169	4,505		3,534	3,821	4,196	5,580		6,244	6,502	7,118	6,670	
Nov.	3,644	3,200	4,253	4,229		3,248	3,408	4,480	3,671		6,620	6,252	6,943	6,955	
Dec.	3,543	3,250	4,584	4,760		4,040	3,547	4,143	3,601		6,132	5,772	7,427	8,142	
	40,932	45,259	51,633	60,845		39,987	45,204	50,120	59,262						

AUTOMOBILE INNER TUBES

	Production During Month					Sales During Month					Inventory at End of Month				
	1922	1923	1924	1925	1926	1922	1923	1924	1925	1926	1922	1923	1924	1925	1926
Jan.	3,125	5,269	5,184	6,343	6,809	2,552	5,091	4,723	5,576	3,723	6,996	7,784	8,960	11,570	14,361
Feb.	3,462	5,386	5,424	6,339	6,825	2,310	4,085	4,530	4,971	3,736	8,189	9,029	9,786	13,023	17,090
Mar.	4,023	6,501	5,625	7,000	7,030	2,848	5,214	4,667	5,711	4,987	9,321	10,321	10,877	14,236	19,131
Apr.	3,534	5,679	5,380	6,851	6,554	3,162	4,825	4,782	6,704	5,051	9,640	11,192	11,503	13,618	20,674
May	3,961	5,757	4,992	6,846	6,149	3,995	4,651	4,865	8,040	6,304	9,586	12,390	11,682	12,501	21,141
June	4,174	4,787	4,658	6,942	6,171	5,391	4,882	5,286	9,032	6,898	8,249	11,899	10,888	10,409	20,243
July	4,091	3,500	5,143	7,544	5,729	4,905	5,374	7,190	9,140	8,569	7,568	9,862	8,845	8,635	17,267
Aug.	5,078	4,771	6,688	7,618		5,733	5,800	7,493	6,923		6,943	9,267	7,678	9,271	
Sept.	4,669	4,339	7,342	7,254		4,797	4,966	6,908	6,665		6,886	8,610	8,052	9,950	
Oct.	5,050	5,140	7,861	6,612		4,618	4,848	5,700	7,845		7,317	9,198	9,803	8,726	
Nov.	5,135	4,602	6,136	6,266		4,165	4,604	6,332	5,406		8,280	8,925	10,224	9,491	
Dec.	4,548	4,385	6,273	6,999		5,197	4,732	5,540	4,991		7,643	8,425	11,052	11,313	
	50,850	60,116	70,706	82,614		49,673	59,072	68,016	81,004						

(1) *Statistics of The Rubber Association of America, raised to 100%.* (2) *All figures expressed in thousands.*

Stock of Crude Rubber in United States and London

(All Quantities in Long Tons)

UNITED STATES

At End of	ON HAND			AFLOAT			ON HAND AND AFLOAT		
	1924	1925	1926	1924	1925	1926	1924	1925	1926
Jan.	——	60,870	55,198	——	36,759	46,296	——	97,629	100,434
Feb.	——	54,109	58,035	——	41,475	46,935	——	95,584	104,970
Mar.	——	52,494	61,822	——	40,577	43,567	——	93,071	105,389
Apr.	——	50,143	55,261	——	53,465	41,905	——	103,608	97,166
May	——	52,064	64,360	——	46,846	40,303	——	98,910	104,663
June	——	50,997	60,460	——	51,202	40,907	——	102,199	101,367
July	——	46,245	64,900	——	46,003	38,062	——	92,248	102,962
Aug.	——	42,354	60,870	——	41,254	37,360	——	83,608	98,230
Sept.	——	36,367		——	55,151		——	91,518	
Oct.	55,378	34,085		46,359	51,098		101,737	85,183	
Nov.	59,017	34,885		35,685	42,692		94,702	86,577	
Dec.	56,080	51,215		46,216	48,208		102,296	99,423	

(Rubber Association of America figures raised to 100%.)

LONDON

(In Wharves and Warehouses—Figures Include Latex)

At End of:	1920	1921	1922	1923	1924	1925	1926
January	19,300	56,573	67,252	73,498	57,460	27,172	9,994
February	18,329	59,439	67,623	70,483	56,732	23,425	10,004
March	18,969	63,913	66,670	63,438	55,647	18,104	13,750
April	20,072	68,759	68,637	58,770	54,559	12,949	18,951
May	20,921	70,403	70,146	54,439	51,615	5,895	20,896
June	22,517	69,408	71,597	51,050	51,115	5,318	23,894
July	25,346	71,065	71,515	49,937	52,073	4,258	27,727
August	30,674	73,211	72,112	48,427	49,700	4,619	30,764
September	35,504	72,175	70,977	54,523	44,011	5,453	
October	41,743	69,229	68,536	58,891	37,523	5,086	
November	45,550	70,786	68,548	60,074	33,593	3,869	
December	50,652	69,792	72,299	60,246	29,488	5,697	

United States Consumption of Gasoline

(Gallons)

MONTHS:	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	144,579,291	169,240,627	236,073,140	294,750,791	282,717,148	456,967,163	500,420,689	595,413,000	720,358,000
February	147,204,377	185,900,192	248,395,214	225,195,372	262,925,732	380,093,070	402,703,876	543,640,000	650,718,000
March	219,333,317	201,004,317	256,020,539	346,164,546	380,406,778	446,460,208	467,181,088	625,053,000	779,571,000
April	265,151,411	243,440,615	297,000,463	333,290,921	385,230,994	485,716,788	607,175,026	798,305,000	831,410,000
May	313,824,603	327,610,273	378,912,692	354,263,486	499,724,405	582,535,781	672,495,321	841,787,000	989,857,000
June	306,677,723	305,960,438	427,747,291	442,924,973	506,959,446	633,504,590	682,409,140	868,350,000	969,051,000
July	353,589,555	296,242,260	434,878,617	457,758,078	566,099,329	674,019,467	789,666,590	963,071,000	1,014,804,000
August	339,435,744	376,484,274	479,741,391	505,035,827	583,687,932	692,154,000	828,057,947	931,901,000	
September	284,685,213	367,633,742	450,888,670	438,083,634	507,924,207	655,797,616	718,068,623	848,867,000	
October	299,642,892	338,429,709	384,802,246	454,995,551	490,393,454	621,172,668	751,499,199	831,774,000	
November	245,278,844	284,620,809	366,567,344	350,548,481	471,616,103	538,308,809	698,359,199	757,744,000	
December	209,863,377	238,245,230	289,673,556	313,015,596	434,399,514	518,305,120	687,967,000	759,699,000	
TOTAL	3,129,266,347	3,434,812,486	4,260,696,163	4,516,027,256	5,372,085,042	6,685,035,280	7,770,238,000	9,365,604,000	

The Market Place

3.

GUAYULE—"Duro" Brand washed and dried ready for compounding.

Continental Rubber Co.
120 Broadway New York

LINERS — PROCESSED
For
Various Rubber Stocks
The Cleveland Liner & Mfg. Co.
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Heater Presses, Molds and Cores, Tubing Machines.
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MANDRELS--CIRCULAR
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Prompt Service—Let us quote you.
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MICA — Water Ground and Water Floated — 160 Mesh —Absolutely Free from Grit. Akron Stocks, also Factory Shipments.
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MICA—160 mesh—water ground —water floated—free from foreign matter.
Stocks carried at Trenton, N. J.—Cleveland, O.—Chicago, Ill.
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Hanna Building, Cleveland, Ohio

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FOR TIRES, MECHANICAL GOODS & DRUGGIST SUNDRIES.
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AKRON, OHIO.

MOLDS AND CORES—
Tire building equipment; general machine work.
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Akron, Ohio

MOLDS & CORES—Tire building machines; tire finishing stands; tubing machines; hydraulic presses.
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Akron, Ohio

MOLDS & CORES—for automobile tires; general machine work.
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Produced from No. 1 Floating Tubes. Absolutely pure — no oils —no compound added. *Specific Gravity*, .98.
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Uniformity, reliability, cleanliness.
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RECLAIMED RUBBER
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A standardized grade for every requirement.
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"43 Years Serving the Industry Solely as Reclaimers"

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The Xylos Rubber Co.
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CAPACITY 250,000 POUNDS DAILY

RED OXIDE—A special grinding, guaranteed uniform in color and quality.
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RUBBER—Crude and scrap, all grades.
H. Muehlstein & Co.
Liggett Bldg. New York
Akron, Chicago, Boston, Hoboken

THE MARKET PLACE Section Continued on Second Page Following.

Exports of Crude Rubber from Principal Producing Countries

(Figures in Long Tons)

	British Malaya[1]								Dutch East Indies[5]			French[3]		
	Gross Exports	*Imports*	*Net Exports*	*Ceylon*[2]	*India & Burma*[3]	*Sarawak*[4]	*Br. North Borneo*[4]	*Siam*[4]	*Java & Madura*	*Sumatra E. Coast*	*Other D.E.I.*	*Indo-China*	*Amazon Valley*[6]	*Total*[7]
1923	252,016	70,432	181,584	37,112	6,416	5,433	1,744	1,718	32,938	44,002	57,822	5,606	19,859	394,263
1924	259,760	107,419	152,341	37,351	7,697	6,485	1,892	2,962	42,446	52,499	80,347	6,688	23,164	413,872
1925	316,825	158,022	158,803	45,684	10,082	8,460	2,308	5,378	46,643	62,678	119,271		25,307	
1925:														
Jan.	19,183	10,132	9,051	3,065	1,090	605	180	404	3,053	5,097	5,858	701	1,712	30,816
Feb.	21,622	10,071	11,551	2,207	1,121	469	148	283	3,490	5,139	8,569	586	2,977	36,540
Mar.	26,836	13,399	13,437	4,201	984	756	209	437	4,583	5,499	10,807	487	2,459	43,859
Apr.	22,414	11,751	10,663	3,250	684	483	164	384	4,121	4,663	8,536	482	1,585	35,015
May	26,667	12,979	13,688	2,600	585	717	189	489	3,624	4,455	12,006	599	2,588	41,540
June	27,894	14,706	13,188	3,502	831	1,046	195	450	4,187	4,667	10,644	833	1,653	41,176
July	24,809	16,192	8,617	4,487	680	955	218	533	4,719	5,244	10,516	411	1,142	37,522
Aug.	27,753	12,025	15,728	3,409	671	548	191	436	3,210	5,186	9,445	484	1,810	41,121
Sept.	29,425	12,913	16,512	4,758	745	766	218	533	3,364	4,913	10,628	764	2,140	45,341
Oct.	28,711	14,986	13,725	5,270	516	639	199	708	3,516	5,511	11,767	683	2,240	44,774
Nov.	31,648	14,904	16,744	3,980	1,044	838	186	411	4,657	6,349	11,958	991	2,620	49,778
Dec.	29,863	13,964	15,899	4,955	1,131	638	208	330	4,119	5,955	8,537	860	2,381	45,013
	316,825	158,022	158,803	45,684	10,082	8,460	2,308	5,378	46,643	62,678	119,271	7,881	25,307	492,495
1926:														
Jan.	30,452	10,237	20,433	4,058	1,273	416	196	288	4,397	6,277	8,081	915	1,284	47,618
Feb.	30,440	8,306	22,134	4,941	725	488	141	253	4,474	5,734	6,801	554	2,759	49,004
Mar.	35,012	14,800	20,212	5,708	1,113	792	232	418	4,865	5,612	11,880	640	2,126	53,598
Apr.	23,727	10,565	13,162	3,484	590	679	251	294	4,522	4,598	6,208		2,318	
May	31,231	10,604	20,627	3,600	691				4,742	5,293	8,606		1,353	
June	30,624	11,764	18,860	3,906	452				4,762	5,852	9,550			
July	28,824	15,280	13,544											
Aug.														
Sept.														
Oct.														
Nov.														
Dec.														

(1) Malayan net exports cannot be taken as Malayan production since much of the imported rubber contains a high percentge of moisture and impurities which are eliminated before it is re-exported; the Malayan figures do not contain rubber exported as latex which on the basis of 3 pounds per gallon amounted to 99 tons in 1923, 957 tons in 1924 and 3,101 tons in 1925. (2) Ceylon Chamber of Commerce statistics until 1926. (3) Official statistics. (4) Figures for Sarawak, British North Borneo and Siam are imports from these territories into Singapore through which port practically their entire production moves. (5) Exports from "Other Dutch East Indies" are chiefly native rubber which contains one-third of moisture and impurities for which no allowance has been made in the statistics; rubber shipped as latex has not been included and amounted to 6,355 tons in 1923, 2,735 tons in 1924 and 6,207 tons in 11 months of 1925. (6) Exports through Para, Manaos and Iquitos. (7) This total includes the net exports from British Malaya and all the figures shown for the other territories.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States	*United Kingdom*	*France* (abd)	*Germany*	*Canada* (ac)	*Japan* (ac)	*Italy*	*Russia* (ce)	*Australia* (cf)	*Belgium* (d)	*Netherlands*	*Sweden* (abcd)	*Norway* (abc)	*Denmark* (abd)
1919	236,977	42,671	19,951	5,584	8,770	10,688	9,894	75	733	3,995	2,771	2,022	437	673
1920	248,762	56,844	15,868	11,890	11,912	6,015	6,123	62	1,040	3,840	5,510	1,567	241	479
1921	179,678	42,087	16,981	21,920	8,248	22,981	3,906	165	554	1,705	1,022	813	178	251
1922	296,267	11,724	27,644	27,546	9,366	16,449	6,430	2,453	2,649	172	–3,807	1,248	321	87
1923	300,372	12,700	31,067	18,519	13,299	17,181	8,489	4,506	1,631	2,184	792	1,391	448	354
1924	317,747	–11,550	34,488	22,727	14,420	19,612	8,764	824	3,127	2,688	–807	1,781	669	473
1925	381,815	4,061	36,911	33,937	19,825	12,743	11,412	7,088	4,217	2,930	875	1,690	701	440
1925:														
January	31,736	–284	2,147	4,303	1,432	797	552	333	192	331	109	164	64	16
February	23,717	–2,492	3,529	3,690	1,278	658	908	1,000	338	275	88	136	145	37
March	31,727	–3,396	3,924	2,784	2,349	689	1,463	1,083	357	373	56	183	77	71
April	31,376	–2,961	3,069	3,574	1,397	719	817	535	314	97	181	149	47	22
May	35,729	–8,650	3,223	3,834	1,532	863	1,060	1,999	385	228	47	126	47	16
June	30,371	619	2,387	3,239	1,681	2,095	1,506	59	378	329	120	97	43	74
July	31,177	2,204	1,827	2,606	1,613	813	650	16	341	176	28	114	45	24
August	32,281	3,825	1,109	2,942	1,582	786	631	85	297	169	76	119	53	35
September	25,213	5,369	4,633	2,667	1,202	936	939	234	429	283	136	102	54	20
October	33,519	1,203	3,039	2,325	1,799	1,060	914	21	243	255	60	159	38	38
November	36,150	2,466	4,654	1,260	1,712	2,140	1,157	190	512	236	–12	219	55	52
December	38,819	6,158	3,370	713	2,248	1,187	815	1,533	431	178	–14	122	33	35
1926:														
January	40,320	6,439	3,170	703	2,188	892	760	332	358	76	154	123	46	51
February	31,435	3,114	3,513	1,113	1,685		1,041	643	432	275	89	171	82	94
March	40,316	8,907	4,790	1,342	2,079		1,037	832	469	129	227	213	31	55
Apr.	33,416	8,275	4,834	1,781	1,615		865	402			93	204	27	23
May	28,704			1,848				200			241	110	24	47
June	23,795	5,894		1,655				983			214	178		
July														
Aug.														
Sept.														
Oct.														
Nov.														
Dec.														

a—Including gutta percha. b—Including balata. c—Reexports not deducted. d—Believed to include scrap and reclaimed rubber. e—Russian statistics are exports from United Kingdom only to Russia. f—Australian annual statistics including 1924 are exports to Australia from Malaya, Ceylon, Dutch East Indies and United Kingdom; monthly figures and total for 1925 are exports from Malaya, Ceylon, and Java only. –Minus sign, reexports in excess of imports. *All statistics from original official trade returns.*

The Market Place

4.

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For cutting all rubber, composition and plain or impregnated fabrics.
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New and Old Rubber Scrap
Rubber Cloth Remnants
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Buyers will see your products if they are listed in THE MARKET PLACE regularly, for they consult this section twice-every-month for their needs.

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31 Average
1924																															
Jan.		26¼	26⅜	26½	26⅝	—	26⅝	26½	26⅝	26¼	26⅜	26⅜	25½	25⅞	26¼	26	26¼	25⅞	25½	—	25¼	25¼	25⅛	24⅞	25⅜	25⅝	—	25⅝	25⅝	25	25⅛
Feb.	25⅜	25⅞	—	25⅝	25⅞	25¼	25⅜	25⅜	—	26¼	25⅝	—	—	25⅝	25½	25¼	—	25⅝	25⅞	25½	25⅛	—	25⅛	25⅛	25⅛	—	25⅛	25⅛	25⅛	25	25¼
Mar.	25⅜	—	24⅜	24	24¼	24½	24½	24¼	25⅜	23⅜	23¼	22⅜	22⅜	22⅛	21¾	22¼	21	22¼	22	22	21¾	21⅞	—	22⅜	21⅞	—	21⅞	22⅛	22⅜	—	22
Apr.	22½	22⅞	22⅞	22	—	21⅝	21⅞	22⅜	22¼	22¼	22¼	22⅜	22⅜	22⅜	22¼	22¼	22¼	22¼	22⅜	22⅜	22⅜	22⅜	23	23	22⅜	23⅜	23⅜	23⅜	22⅜	22⅜	22½
May	22⅝	21⅞	22	—	21⅝	21⅞	21⅞	21	21	21⅛	—	20⅜	20⅜	20	19	18	—	17⅝	18	—	18⅜	18⅜	—	19⅛	18⅜	18⅜	18⅜	18⅜	18⅜	18⅜	19⅛
June	—	18⅝	—	19⅝	19⅝	19½	19⅝	—	19⅝	19⅝	20¼	19⅝	—	18⅝	—	—	21¾	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝	18⅝
July	18⅝	19½	19⅜	—	25	—	25½	27¼	27	20¼	—	26¼	—	21	21¾	22¼	21¾	21⅝	21⅝	21⅝	21⅝	22⅛	22⅛	22⅜	22⅜	22⅜	23¼	23¼	23¼	23¼	22½
Aug.	23⅜	23⅜	—	24	26⅜	26⅜	26⅜	27¼	27	26¼	26¼	26¼	26¼	25	26¼	27¼	27¼	26⅞	26⅞	26⅞	26⅞	26½	26½	26⅜	26⅜	26⅜	26⅜	26⅜	26⅜	26⅜	27½
Sept.	—	26¾	26½	26⅜	26⅜	25½	25⅜	25⅜	25⅜	—	26¼	25⅜	25⅜	25⅜	25⅜	25⅜	27¼	27⅜	27⅜	27⅜	27⅜	27⅜	27⅜	27⅜	27⅜	27⅜	27⅜	28¼	28¼	28¼	27½
Oct.	26⅞	29½	29½	—	34⅞	34¼	34⅜	34½	—	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	34¾	32¾	32¾	34¾	33½
Nov.	34¾	—	34¾	—	36⅜	36⅜	37⅛	—	38	37⅝	37½	37½	37⅝	—	37⅝	37⅝	37⅝	38	38⅝	38¾	—	39¼	38⅞	38⅞	38⅞	38⅞	38⅞	38⅞	39⅜	39⅜	40⅜	37⅞
Dec.	35½	35⅞	36	36⅜	36⅜	37⅛	—	38	37⅝	37⅝	37½	37½	37⅝	—	37⅝	37⅝	37⅝	38	38⅝	38¾	—	39¼	38⅞	38⅞	38⅞	38⅞	38⅞	38⅞	39⅜	39⅜	40⅜	37⅞
1925																															
Jan.	—	39⅞	39⅝	—	39	39	39¼	38⅛	38⅝	38⅝	—	37⅝	36½	36⅝	35⅝	36⅜	35⅝	35⅝	34⅞	34⅞	35	36¼	36¼	36¼	35⅝	35⅝	35⅝	35⅝	35⅝	35⅝	36¾
Feb.	—	35⅞	34⅜	34½	34½	—	35⅞	—	35⅞	34⅜	35½	36	35⅞	36	36⅜	36⅜	36⅜	36⅜	36⅜	36⅜	36⅜	37⅛	37⅛	37⅛	37⅛	37⅛	37⅛	38⅜	—	—	36
Mar.	—	38⅞	38⅞	38⅞	39⅜	—	39⅜	—	39⅜	40⅜	40⅜	39⅜	40½	40½	—	40⅜	41½	41¼	41¼	41¼	41⅞	42½	42½	43⅜	43⅛	43⅛	43⅛	43⅛	44½	42⅜	41
Apr.	41¼	41⅞	41¼	41⅜	—	42⅜	42⅜	43⅜	43⅜	—	—	—	44⅛	44⅜	44⅜	44⅜	44	44	44	44	44⅞	44⅞	43⅜	43⅜	44⅞	44⅞	45⅜	44⅞	—	43⅜	43⅜
May	45	47¼	—	47¼	46⅞	48⅜	50⅞	52½	55⅞	59	59	57	59¼	60⅜	60⅜	64¼	—	69⅜	63	61⅜	60⅜	61⅜	65	63	63	65⅞	69⅜	69⅜	—	58⅞	58⅞
June	69½	72	74⅞	76½	75⅜	75⅜	74⅞	73⅜	74	75¼	75¼	76⅜	74⅞	—	71⅜	71⅜	72⅜	73⅜	75¼	76¼	—	79¼	83⅜	85⅞	82⅞	82⅞	—	—	85⅞	77⅞	77⅞
July	81½	81⅞	85⅜	—	88⅛	90½	95⅜	94⅜	99	99⅜	106½	—	110	105⅜	110⅜	117	116⅜	118⅜	80½	121	117⅛	119	117⅛	112¼	112¼	—	—	96¾	89⅜	103¾	83
Aug.	94½	—	95½	88¾	85⅜	86⅜	81⅜	79	—	71⅜	72½	76½	81½	80¾	77⅜	—	78¼	80½	83½	82½	82½	82½	—	82	82½	85¼	85¼	87⅜	90	88	88⅞
Sept.	88¼	87¼	85	81¼	81⅜	—	—	78¼	80½	83	86½	92	93½	93¾	92¾	92¾	92¾	92¾	92¾	92	92	93½	93½	90	89	89	—	99¼	91½	100¼	98
Oct.	91¼	91¼	92	—	94½	97	97½	99	99¾	101	100¼	101¾	97¼	95½	97	99	99	99	99	101¼	102	99	99¼	99¼	99	98	101½	99¼	100¼	98
Nov.	—	99¾	—	98⅜	98¼	100	100¼	—	98	99¼	100¼	105½	105½	—	109	90¼	93	107	109¾	110¾	110½	110½	109	110¾	106¼	—	108¼	108¾	107	104¾
Dec.	106¾	108½	107¾	107¼	108¼	—	108	109	109¼	106	105¾	105½	—	101	99¼	90¼	93	86¾	—	86¾	88¼	90¼	88¾	88¾	88¾	—	91	93	91¼	91¼	98⅜
1926																															
Jan.	—	—	—	87	87¼	85½	86½	87½	87¾	—	88¼	88¼	88¼	85⅛	84½	82½	—	75½	75¼	75¼	75½	72	72½	—	68	66½	67	69¼	70½	69	—
Feb.	67	67½	66¾	68	69	69	—	—	69	65	66	66	65½	—	63	60½	60½	59	60	60	—	56	—	55	52	51	51	—	59½	58	58
Mar.	55	58	53	53½	59	57½	58	56	67	55½	60	63	61½	62	61	60½	61	61	61	61½	61	61	60	60	59½	60	48	48	48½	—	—
Apr.	59	—	59	50	50¼	49¼	49¾	49¾	49¾	53	49	51¼	50½	48½	47¾	47½	47	47	47½	47½	47¼	46¾	46	45	45	48	48	48	—	—	—
May	48¼	—	—	—	41¼	41¼	42	41¾	41¾	41¾	41¾	41¾	43	43¾	43¾	43¾	43	43	43	43	43	43¾	43½	42	42	42	42	42	42	42	42½
June	41½	42	42	41¾	42	41¾	—	—	—	—	—	—	—	—	43	43	43	43	43	43	43	44	43½	42	42	42	42	42	42	42	42	41¾
July	42	42	42	42	—	—	41¼	41¾	41¾	41¾	41¾	41¾	41½	41½	40	40	40	40	40	40	40	41	41¼	41¼	41¼	41¼	41	41	41	39¾	39
Aug.	—	38¾	38½	37	37	—	—	40¾	40¾	40¾	40¾	40¾	40½	40¼	38	38	38	38	39	39	39	40	41¼	41¼	39	39	39	39	41	39½	40
Sept.	40¼	40¼	40¼	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Oct.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nov.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dec.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Automobile Production

	Passenger Cars			Trucks		
	Total	United States	Canada	Total	United States	Canada
1920	1,883,158	1,799,522	83,636	322,039	311,531	10,508
1921	1,514,000	1,452,902	61,098	147,550	142,402	5,148
1922	2,397,827	2,302,923	94,904	251,434	244,285	7,149
1923	3,719,164	3,589,936	129,228	378,288	361,078	17,210
1924						
January	293,824	283,983	9,841	30,785	29,038	1,747
February	343,460	331,388	12,072	32,974	31,295	1,679
March	357,045	341,851	15,194	36,505	34,466	2,040
April	346,405	331,957	14,448	38,037	36,104	1,933
May	286,324	271,033	15,291	35,408	33,655	1,753
June	225,079	214,322	10,757	29,135	28,185	950
July	244,544	235,925	8,619	26,448	25,341	1,107
August	255,232	249,796	5,436	28,714	27,834	880
September	263,528	256,940	6,588	32,015	30,663	1,351
October	260,881	254,524	6,357	32,533	31,263	1,270
November	204,343	198,381	5,962	27,956	26,875	1,081
December	182,099	174,899	7,200	27,596	25,906	1,690
Total	3,262,764	3,144,999	117,765	378,106	360,625	17,481
1925						
January	212,921	204,620	8,301	28,198	26,633	1,565
February	252,803	242,024	10,779	34,467	32,774	1,693
March	332,154	319,140	13,014	45,168	43,079	2,089
April	391,302	375,787	15,515	47,898	46,322	1,576
May	382,714	364,363	18,351	43,380	41,492	1,888
June	364,806	350,557	14,249	38,141	36,347	1,794
July	358,554	347,414	11,140	41,915	40,070	1,845
August	221,831	214,401	7,430	37,843	36,357	1,486
September	272,425	262,053	10,372	60,452	57,972	2,480
October	406,572	392,651	13,921	46,003	44,309	1,694
November	336,358	327,617	8,741	40,077	37,840	2,237
December	285,199	277,701	7,498	34,477	32,746	1,731
Total	3,817,639	3,678,328	139,311	498,019	475,941	22,078
1926*						
January	284,703	272,922	11,781	33,461	29,763	3,698
February	334,524	319,763	14,761	41,685	37,608	4,077
March	399,105	381,116	17,989	49,233	44,848	4,385
April	401,836	383,907	17,929	53,887	50,314	3,573
May	394,569	373,140	21,429	51,343	47,838	3,505
June	358,360	339,542	18,818	47,043	44,110	2,933
July	——	315,861	—	—	39,585	—
August						
September						
October						
November						
December						

*Revised Figures

U. S. Consumption of Crude Rubber

(Rubber Association of America statistics raised to 100 per cent—All figures in long tons)

	1921	1922	1923	1924	1925	1926
January	5,045	16,938	30,106	29,058	29,638	32,196
February	5,955	14,767	30,149	25,736	29,761	31,136
March	9,190	21,408	36,629	28,385	33,498	32,936
April	13,084	19,294	29,085	27,129	34,139	32,696
May	16,023	23,246	36,155	25,845	35,322	29,364
June	16,142	31,713	24,272	22,753	35,822	28,598
July	18,310	24,522	17,685	23,396	36,053	27,577
August	23,649	29,361	20,259	28,962	35,909	34,444
September	16,705	24,410	17,594	31,497	31,691	
October	16,814	26,881	21,321	31,520	29,047	
November	14,105	24,950	20,437	27,289	28,853	
December	15,482	25,070	21,902	27,199	28,748	
TOTALS	170,504	282,560	305,694	328,769	388,481	

Monthly statistics covering shipments of various classes of rubber goods from the United States may be secured free of charge from the Rubber Division, Bureau of Foreign & Domestic Commerce, Washington, D.C.

BOOKS Every Rubber Man Should Read

Below are listed a number of books which should be included in the library of every rubber manufacturer and individual desirous of keeping posted on all phases of rubber planting, manufacture and chemistry. These books and *any others published* on factory management, efficiency, production, costs, sales, advertising, engineering, electricity, physics, mathematics or any similar subjects, may be obtained at regular publisher's prices through this department. If you want to know what books are published on any subject, write us; or if you need help of any kind on books, this department will gladly assist you.

BEDFORD, C.W., and WINKELMANN, H.A. Systematic Survey of Rubber Chemistry. 385 p. $7.00
Contents: Introduction by Dr. W. C. Geer; Organic Accelerators of vulcanization by Dr. L. B. Sebrell; Theories of vulcanization by Dr. W. J. Kelley; Author index; Subject index; Patent index.

DE VRIES, O. Estate Rubber, Its preparation, properties and testing. Translated from the Dutch. 649 p. $10.00
Contents: Composition and physical properties of latex; Collection of the latex; Coagulation; Methods of Coagulation; The coagulum; The serum; Preparation of crepe-rubber; Comparison between smoked sheet and crepe; Lower grades; The Brazilian method of preparation; Methods of testing; Physical properties and testing of unvulcanized rubber; Chemical composition of rubber; index.

DUBOSC, A., and LUTTRINGER, A. Rubber: its production chemistry and synthesis in the light of recent research. A practical handbook for the use of rubber cultivators, chemists, economists and others. English edition by Edward W. Lewis. 383 p. $8.50

FACTORY MANAGER. Rubber Goods Manufacture. 496 p. $12.50
Contents: Factory arrangements; Factory machinery; Tire and tubing department; Washing, drying and mixing operations; Vulcanization; Principal raw rubbers; Mineral and other substitutes; Mixings used in common articles; Cloths for rubber trade; Engineering and electrical goods; Matting and tiling; Heels; Hose; Tubing, bags and connectors; Air Pillows and water bottles; Tires; Inner Tubes; Rubber bands, rollers, etc.; Coachbuilders' and jobbers' requisites; Management of a rubber factory; Examples of estimating costs; Appendix; Index.

GEER, WILLIAM C. The Reign of Rubber. 444 p. $3.00
This book was written to fill a real need. There are accurate books on this subject, but they are highly technical. There are popular books on the subject, but they are said to be grossly inaccurate. "The Reign of Rubber" is complete, accurate and non-technical in style.

HEIL, ADOLPH and ESCH, DR. W. The Manufacture of Rubber Goods: A practical handbook for the use of manufacturers, chemists, and others. Third edition. 236 p. $5.00
Contents: Plan and arrangement of a rubber factory; The raw material; Vulcanization; Mixings; Manufacture of soft-rubber articles; Manufacture of ebonite; Reclaiming of rubber waste; Specific gravity.

LUFF, B.D.W. The Chemistry of Rubber. 232 p. $7.50
A book which deals with the chemical principles involved in the cultivation, collection and manufacture of rubber, with consideration also given to the concomitant changes in physical properties accompanying the process of vulcanization.

MacLAREN, W. A. Rubber, Tea and Cacao. With special sections on coffee, spices and tobacco. $7.50
Contents: The raw rubber industry of the British empire; General economic survey, including consolidated statement of supply and consumption; Geographical surveys—Rubber in British Malaya; Ceylon; India; Borneo and New Guinea, British colonies in Africa. Gutta-percha and Jelutong industries; the Balata industry.

MORGAN, SIDNEY. The Preparation of Plantation rubber. With a preface and a chapter on vulcanization by H. P. Stevens. 331 p. $6.00
Chapters on planting; Field maintenance; Tapping; Collecting; Factory operations; Machinery and buildings; Finished rubber and vulcanization.

MORRELL, R.S., and DE WAELE, A. Rubber, Resins, Paints and Varnishes. 248 p. $4.00
Contents: The rubber hydrocarbons.

PEARSON, HENRY C. Crude Rubber and Compounding Ingredients. A textbook of rubber manufacture. Third edition. 422 p. $10.00
Contents: Chemical and physical properties of rubber; with chapters on substitutes, accelerators, reclaimed rubber, gutta percha, compounding materials, etc.

PEARSON, HENRY C. Pneumatic Tires. An encyclopaedia of manufacture, repair, rebuilding, processes, machines, etc. 1323 p. $12.00
Complete history of development of tires, methods of manufacture, machinery used, tire accessories, tools, repair methods.

PEARSON, HENRY C. Rubber Machinery. 419 p. $6.00
Contents: The washing and drying of crude rubber; Dry sifting and batching of compound ingredients; Mixing or compounding of rubber; Preparing fabrics for calendering and spreading; Calenders; Clutches; drives and safety stops for mills and calenders; Reclaiming; Conveyors; Temperature recording and controlling devices; Rubber laboratory equipment.

PETCH, THOMAS. Diseases and Pests of the Rubber Tree. 278 p. $5.00
With extended bibliography of papers on diseases and pests of Hevea and a full treatment of subject.

PINKNEY, W.G., and WATKINS, P. The Rubber Manufacturers' Handbook. Tables and Formulae. 89 p. $3.50
The object of this book is to place in the hands of the rubber manufacturer a series of tables and formulae in a concise form arranged from datum which the compilers have from time to time found useful and necessary for their own reference.

Any of the above books sent postpaid upon receipt of price.

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